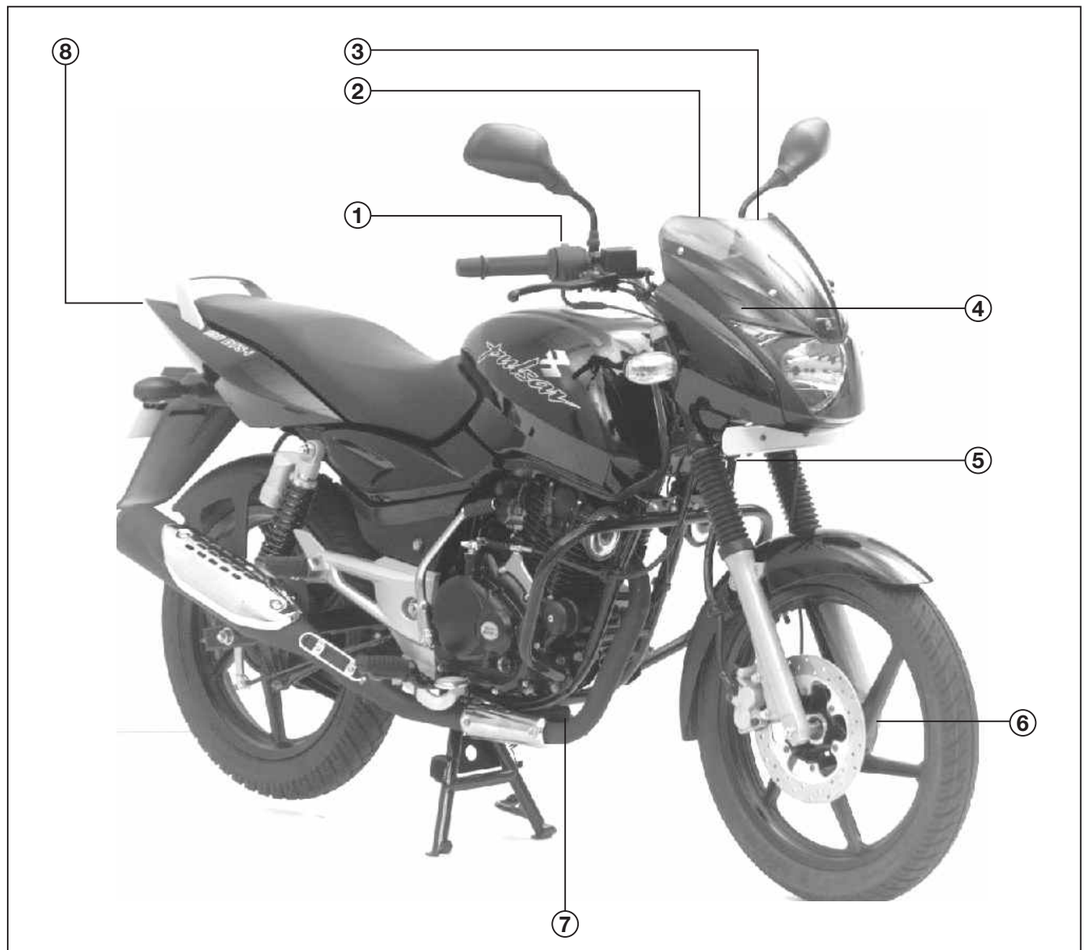
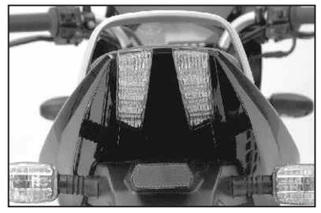
Uploaded by lockhrt

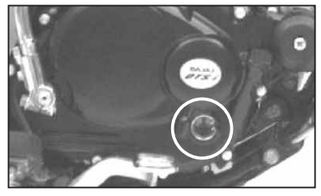
The Engine and Frame serial numbers are used to register the vehicles. They are the only means of identifying your particular vehicle from the other of the same model and type. These serial numbers may be needed by your dealer when ordering the parts. In the event of theft, the investigating authorities will require both these numbers in addition to the model, type and any special features of your vehicle that can help identifications.

Location of Parts



1. **Control Switch RH**
2. **LCD Speedo Console**
3. **Control Switch LH**
4. **Body Control Unit**
   (Placed inside Head Light fairing)
5. **Hall Sensor for Indicator**
6. **Vehicle Speed Sensor**
7. **Exhaus*TEC***
8. **Tail Light LED display**





Performance :

- Refined engine power delivery by optimization of Exhaus TEC location and revised ignition timing with intelligent CDI
- New clutch & revamped gear shifting mechanism that gives smooth, positive, virtually friction-free gear shift feel
- New Bigger twin foam filter with an optimized intake system to provide better torque
- Optimized valve timing and Roller rocker with NR bearing for friction reduction that improves drivability.
- LED tail lamp that consumes negligible power & require zero maintenance
- Stainless steel silencer that overcomes rusting problem
- All sensor type electrical switches that enables switches to function for the life of the bike. Absolutely no maintenance in absence of mechanical contacts.

Style :

- **Stylish fairing** and head lamp assembly with owleye
- A new black mask that separates headlamp from parking lights adds to aesthetics.
- Clear lens indicator with amber bulbs.
- New age, sharp and attractive 2 Row Tail lamp with LED lights
- New seat cowl to match stylish LED tail lamp.
- Louver type LH & RH covers with wire mesh gives sturdy look.
- Ergonomically designed self-letting switches

Convenience and Comfort

- LCD Speedo Console with digital fuel gauge (12 level indicator)
- Digital speed display, odometer and two trip meter with resetting provision.
- Self-canceling indicators After completion of turn, the indicator will be switched off automatically.
- Engine oil level window for easy to monitor level.
- Maintenance free battery once a year electrolyte top up.
- In addition to Fuel gauge, Reserve indicator bulb is provided that glows continuously till the petrol filled to main level.
- Self check provision for Tachometer for its functioning

Safety :

- Day night mode of Speedo console
- The turn Indicator, neutral, high beam, and side stand Indicator bulb glow brightly in the day for clarity, and Intensity reduces during night to reduce irritance to the rider's eye
- High RPM warning lamp when engine reaches to 9000 RPM automatically Red LED bulb starts blinking. This enables the rider to control the speed to avoid damages if any that may take place to engine components.
- Engine cut-off at 10000 RPM Spark gets cut-off at 10000 RPM to bring down the engines RPM for safety.
- LED illumination for tell-tale icons on electrical switches that glows in the night for positive access of individual functions.

Engine and Transmission

Type		:	Four stroke DTS-i, Natural air cooled.
No. of cylinders		:	One
Bore		:	63.50 mm.
Stroke		:	56.40 mm.
Engine displacement		:	178.60 cc.
Compression ratio		:	9.5 $\pm$ 0.5:1
Idling Speed		:	1400 $\pm$ 100 rpm.
Max. net power		:	12.15 kW (16.51 Ps) at 8000 rpm.
Max. net torque		:	15.22 Nm at 6000 rpm.
Ignition System		:	Microprocessor controlled digital C.D.I.
Ignition Timing		:	10^0 BTDC at 1500 rpm.
		:	28^0 BTDC at 3500 rpm.
Fuel		:	Unleaded petrol
Carburettor		:	UCAl-MIKUNI BS29, Side Drought, CV Type.
Spark Plug		:	2 Nos. Champion RG4HC, Bosch UR3DC (Resistive)
Spark Plug Gap		:	0.7 to 0.8 mm.
Lubrication		:	Wet sump, Forced.
Starting		:	Kick start / Electric start.
Clutch		:	Wet, Multidisc type.
Transmission		:	5 speed constant mesh.
Primary Reduction		:	3.47 : 1 (66/19)
Gear Ratios:	1st gear	:	26.93 : 1 (36/13)
	2nd gear	:	18.31 : 1 (32/17)
	3rd gear	:	13.43 : 1 (29/21)
	4th gear	:	10.54 : 1 (26/24)
	5th gear	:	8.98 : 1 (24/26)
Final drive ratio		:	2.80 : 1 (43/15)

CHASSIS & BODY

Frame Type		:	Double cradle.
Suspension	Front	:	Telescopic front fork with DU bush (Stroke 135mm)
	Rear	:	Trailing arm with coaxial hydraulic cum gas filled adjustable shock absorbers, and triple rate coil springs.
Brakes	Front	:	Mechanically expanding shoe and drum type. Hydraulically operated disc type.
	Rear	:	Mechanically expanding shoe and drum type.
Tyres	Front	:	2.75 x 17, 41 P
	Rear	:	100/90 x 17, 55 P
Tyre Pressure	Front	:	1.75 kg/cm^2 (24.5 Psi)
	Rear Solo	:	2.00 kg/cm^2 (28.0 Psi)
	Rear Pillion	:	2.25 kg/cm^2 (32.0 Psi)
Rims (Alloy Wheels)	Front	:	1.60 x 17
	Rear	:	2.15 x 17

Fuel Tank Capacity		:	15 liters Full
		:	3.2 liters Reserve
		:	2.0 liters Usable reserve

CONTROLS

Steering		:	Handle Bar
Accelerator		:	Twist grip type on RH side of handle bar
Gears		:	Left foot pedal operated
Clutch		:	Lever operated on LH side of handle bar
Brakes	Front	:	Lever operated on RH side of handle bar
	Rear	:	Pedal operated by right foot

ELECTRICALS

System	:	12 V (AC+DC)
Battery	:	12V 9Ah
Head Lamp	:	35/35 W-HS1
Pilot Lamp	:	5W - 2 Nos.
Tail/Stop lamp	:	LED
Turn signal lamp	:	10 W (2 Nos.)
Turn signal pilot lamp	:	LED
Side stand indicator lamp	:	LED
Hi beam indicator lamp	:	LED
Neutral indicator lamp	:	LED
Speedometer lamp	:	LED display
Rear number plate lamp	:	5 W
Horn	:	12V DC

DIMENSIONS

Length	:	1990 mm.
Width	:	750 mm.
Height	:	1090 mm.
Wheel base	:	1320 mm.
Turning circle radius	:	2180 mm. (Minimum)
Ground clearance	:	165 mm. (Minimum)

WEIGHTS

Vehicle kerb weight	:	143 kg.
Gross vehicle weight	:	273 Kg.

PERFORMANCE

Maximum speed	:	125 km/h with single rider (68kg)
Climbing ability	:	28% (16^0 Maximum)

Notes:

- **Values given babove are nominal and for guidance only, 15% variations is allowed to cater for production and measurement variation.**
- **All dimensions are under UNLADEN condition.**
- **Definitions of terminologies wherever applicable are as per relevant IS/ISO standards.**
- **Specifications are subject to change without notice.**

What are the special features of 'PULSAR DTS-i 180 UG III '? OR

What is so special in this 'PULSAR DTS-i 180 UG III '?

Pulsar UGIII is next version of Pulsar breed. It is loaded with lots of unique & contemporary features and that distinguishes the Pulsar not only in the category of Power, Performance & Style but also for Comfort, Convenience & Safety from the competition.

Apart from refining the power delivery, it is loaded with the features that are meant for cars. So, here is the Comfort, Convenience & Safety of the 4 wheels (cars) available on 2 wheels.

The major changes / features are

Enhanced Performance

- Refined engine power delivery by optimization of ExhausTEC location, bigger & twin Air Filter element, optimized valve timing, reduced engine friction etc.
- Stainless steel silencer that lasts long & overcomes rusting.
- All sensor type electrical switches that function for the life of the bike. Absolutely no maintenance in absence of mechanical contacts.

Enhanced Style

- Stylish fairing & Headlamp assembly with owl eye, new black mask to separate headlamp from parking lights
- New age, sharp & attractive 2 Row Tail lamp with LED lights
- Louver type LH & RH covers with wire mesh gives sturdy look.
- Ergonomically designed self-letting switches
- Absolutely no maintenance in absence of mechanical contacts.

Enhanced Comfort & Convenience

- Loaded with Digital Technology like LCD Speed/Odo display, digital fuel meter, Digital trip meter that enables to count two trips.
- Car like self canceling indicator switches that keeps rider free from switching off the indicators after turn.
- Apart from digital fuel meter, warning light for low fuel level is provided.
- Self check provision for tachometer to ensure proper functioning.
- Oil level inspection window that indicates oils level at a glance.

Enhanced Safety

- Engine cut-off at 10000 RPM Spark gets cut-off at 10000 RPM
- High RPM warning lamp when engine reaches to 9000 RPM automatically Red LED bulb starts blinking.
- Day night mode of Speedo console, LED illumination for tell-tale icons on electrical switches that glows in the night for positive access.

How does the digital Speedo work?

Front wheel of the bike has a sensor & magnet unit. The sensor counts no. of pulses w.r.t. wheel rotation & logically calculates number of wheel rotation & gives input to the display unit in the speedo console and the LCD display indicates accurate speed, odo reading & trip meter readings.

What are the advantages / Benefits of the digital speedometer apart from giving accurate reading?

This system is totally contact less & no mechanical transmission of drive from wheel to speedometer is available. Thus this system is totally maintenance free & lasts for the life of the bike.

How the digital fuel indicator meter works? OR How one can understand the available fuel level in the fuel tank? OR How to read the graphical bar of the fuel meter?

Graphic bar with 12-segment display is provided in the speedo console for indicating fuel level in the tank. If the all the 12 segments of a bar graph are 'ON', that indicates that the fuel tank is full.

As the float gauge in the tank starts lowering down due fuel level coming down, the segments of the bar graph starts diminishing with corresponding drop in fuel level.

When the petrol level comes down to below four liters, all the segments of the bar will vanish.

Apart from LCD graph bar, a red warning light also has been provided in the console that glows continuously when the petrol level falls down to reserve. And it will be 'ON' till petrol is filled above reserve level.

When the digital fuel meter is available, why the red warning light is provided?

While the LCD graphical bar segments indicates the petrol level in the fuel tank, the red warning light continuously reminds the rider to fill the petrol.

Why two trip meter reading option is given? How is it useful?

It is just to enable the rider to count reading for two different trips unlike only single trip in case of conventional type.

It is like this - on selecting 'Trip1' its will indicate the distance covered in first trip that is set for. In continuation, on selecting 'Trip2', it will indicate the distance covered in the second trip. Then if one wants to know the cumulative distance covered in first & second trip, it can be found in 'Trip1' mode. For this one has to just press/select 'Trip1' mode.

This is an added advantage taken from digital technology!

What do Self-canceling Indicators switches means?

In conventional type of switches, the rider has to manually depress or turn knob of indicator switch for putting 'OFF' the indicator bulbs. In case of this Self-canceling' switches the indicator goes off automatically after the rider takes a turn & brings the handle bar straight. This feature is similar to cars. That means, rider do not have to press or turn the switch to cancel the indicators.

What if one switches ON the indicator and do not physically take a turn? Will it work in such situation?

Yes. Of course. When the rider selects a right or left turn indicator, but changes his mind and physically do not take a turn, the indicators turn 'OFF' automatically after pre-set time. For this a timer function is incorporated in the system. And the timing for this timer is set around 80 seconds.

What does non-contact Handlebar switches mean?

The control switches on both sides of the handlebar are conventional to look at, in terms of switch operations & knob position etc. But the key & distinguishing difference is the principle of functioning that means these switches do not function on the basis of physical contact for ON & OFF. These are on non-contact sensor based.

This feature will have any wear and tear & hence its life would be more than the life of the bike. These are absolutely maintenance free as far as wear & tear is concerned.

The other feature, in these switches is the Illumination of the tell-tale icons that is lit up with LEDs inside the switch body. This gives the icons a pleasant bluish white glow that can be seen in the night clearly & coolly.

The tail lamp assembly seems to be too special. What is so in that?

Yes. The tail lamp is unique on this vehicle and no other competitor's vehicle has this feature. It consists of 16 (8) nos. of LED bulbs with bi-filaments.

The specialties of LED bulbs are

- Consume very low current
- Glow brightly
- Last far long
- Totally maintenance free

So, the LED tail lamp apart from delivering fantastic performance, it adds to aesthetics.

What is this bi-filament bulb?

Bi-filament bulb means these LED bulbs have two filaments in each bulb. One filament of lower wattage for parking lights & another for brake lighting, which is of little higher wattage.

If so much so electrical /electronic appliances are loaded, it may affect on Battery?

Absolutely not. In fact, all the bulbs & backlit bulbs in the Speedo console (except Head Lamp bulb & pilot bulbs) are of LED type. Few of them works on AC & few are on DC i.e. battery. So there is hardly any drain on the battery as compared to conventional type of bulbs.

Moreover, the Battery of this new Pulsar 180 is special & maintenance free.

What is this maintenance free Battery?

The battery is new development in DC system on two wheelers (in fact, such batteries are introduced in cars earlier than bikes) it is different than the conventional one in the material composition it is made up of. The main features of this new battery are

- Electrolyte level checking is required at every one year instead of every fortnight
- The unique vent mechanism that do not allow loss of electrolyte
- No drainpipe unlike in conventional type battery. So no chances of spillage of electrolyte.

So, in all it is almost maintenance free battery. Moreover, the LED bulbs, & disable function of cranking after 3 successive self starts attempts, will further only enhance the life of the battery.

What is that disabling of cranking after 3 successive attempts?

A protective device has been incorporated in the system that allows rider to attempt self-start option (pressing of self-start button) for starting only three times at times. After third attempt the battery power supply gets cut-off to the self-starter motor, thus avoid rider from further cranking of engine by self-start.

This is mainly to protect the battery from over draining by excess attempts of pressing of self-start button to start the engine.

However, one can again use the self-start option after 15 seconds after third attempt.

How come so many features are managed accurately & what is the guarantee of no malfunctioning of these features?

It is needless to say that the digital technology that works with sensors & chips works accurately. To control all the functions of these electronics features, an intelligent device has been installed in the electrical system. This is called BCU (Body Control Unit)

What exactly is BCU (Body Control Unit)? How it controls all these functioning?

BCU (Body Control Unit) is a device that integrates & controls major of all electrical / electronic functions on the vehicle. It is an intelligent device that works on microchip base.

In the eventuality of electrical overloads or short circuits, the built in intelligent protection circuit takes the control of the situation & prevent future damages on other electronic parts. For example:- During night, suppose one of the Head light filament blows OFF then there is a possibility of an accident due to sudden darkness.. To rescue, here the BSU plays an important role. It switches over the Headlight to the other beam automatically without manual shifting of any switches.

It also checks & inspects the fused circuit religiously for any corrections and thus riders' safety is ensured.

Are these type of product features available in Pulsar150cc also?

Presently not. But as in all sphere of life, technology also proliferates. When that happens you may find similar features in Pulsar 150cc also.

Can one alter the current Pulsar model & incorporate these features?

No. It is not possible. Physically lot of changes are there that are not easily accommodated in the existing Pulsar.

Sl.	Check Points for PDI	Check	PDI done by BAL/ Service Engg.	PDI Done by Dealer
1	LOCK OPERATION			
	STEERING LOCK NOT WORKING/JAM			
	SIDE COVER LOCK NOT WORKING			
2	PAINT FINISH - OVER FLOW (Samples / photographs)			
3	FUEL TANK DEFECTS			
	LEAKAGE			
	BLISTERS			
	RUSTY			
	OTHERS (Specify)			
4	FUEL COCK OPERATION - HARD / LEAKAGE			
5	FRONT / REAR WHEEL OFFSET			
6	WHEEL			
	FR. WHEEL TYRE -Free rotation.			
	FRONT WHEEL RUNOUT (SPECIFY)			
	REAR WHEEL RUN OUT (SPECIFY)			
7	SILENCER -BAFFLE NOISE			
8	SWITCHES			
	RH switch operations			
	LH Switch operations			
	IGNITION SWITCH SHORT			
9	LIGHTS:-			
	Side indicator blinking.			
	HEAD LIGHT			
	TAIL/BRAKE LED			
10	HORN :- DISTORTED/WEAK SOUND(DO NOT SET)			
11	Speedo :			
	SPEEDO NOT SENSING.			
	SPEEDO Needle flickering.			
	Tripmeter - 1/2 working -Resetting			
	Odometer working			
	Auto - Calibration of RPM meter			
	Fuel level indication			
	Reserve indication (by red lamp)			
	Red lamp blinking after crossing Engine RPM 9000			
	Auto-switch off of Ind lamps(H bar straight for > 2 sec)			
	Head light / tail light illumination after 3 seconds			
	LED functioning - Speedounit - Both side indication, Side stand, Neutral, Hi beam, RES ind lamp			

Sl.	Check Points for PDI	Check	PDI done by BAL/ Service Engg.	PDI Done by Dealer
12	FLAT SPOT (GIVE CO %)			
13	DRIVE CHAIN slack (mention amont of play)			
14	BRAKE OPERATION - FRONT/REAR			
	FRONT BRAKE			
	REAR BRAKE EFFECTIVENESS			
	BRAKE LIGHT REMAINING ON CONTINUOUSLY.			
15	GAP AT THE REED SWITCH AND MAGNETO.			
	CHECK POINTS FOR PDI			
16	LOOSE PARTS			
	KICK BOSS BOLT			
	ENGINE MOUNTING BOLT			
17	ENGINE NOISE			
	TAPPET NOISE			
	CHAIN TENSIONER / TIMING CHAIN			
18	ENGINE OIL LEAKAGE			
	DRAIN BOLT			
	MAGNETO COVER			
	CRANKCASE JOINT			
	OIL FILLING PLUG			
	OHC COVER			
	TAPPET COVER			
	BENJO BOLT			
	CHAIN TENSIONER 'O' RING			
	OIL LEVEL INDICATOR WINDOW			
	OIL FILTER COVER			
19	CLUTCH OPERATION			
	HARD			
	CLUTCH JUDDERING			
20	PLATING DEFECTS			
	HANDLE BAR			
21	ENGINE OPENING DURING PDI (If any)			
	(Give engine no & reason for engine opening)			
22	FRAME OPENING DURING PDI (If any)			
	(Give chassis no & reason for chassis opening)			
23	OTHER DEFECTS :			
	MINOR ADJUSTMENTS			
24	TRANSIT DAMAGES (Send photographs)			

✓ Marked if the ok observed

Sr. No.	Description	Position	SMM	GP Tools	Special Tools	PNR & its Attachment	Consumables	M & T / Service Shop Equipments
1	Identify & Park Vehicle on Work Bay		0.80					Lifter Bay
2	Remove the Thermocol and additional packing if any. Study PDI card and Work content.		0.50					
3	Open Petrol tank cap & pour petrol		0.50	Measuring Jar, Funnel			Petrol, Waste Cloth	
4	Check for smooth operation of fuel cock lever		0.10					
5	Check & top up engine oil level, if required.	RH	0.30					
6	Check clutch cable operation & Adjust if required.	RH	0.10	12-13 OE Spanner				
7	Check front brakes for efficient working & Adjust if required.	Front / RH	0.10	12-13 Ring Spanner				Air Gun
8	Check and correct tyre inflation pressure - Front Wheel	Front	0.20	Pencil Type Pressure Gauge				Analogous/Digital type Pressure gauge, Air filling Valve
9	Check Battery voltage, fill / top-up electrolyte, apply petroleum jelly, connect terminals properly.	LH	0.60	Screw Driver, Distilled water Filler, 10mm 'T' Spanner			Cloth, Fine Polish Paper, Petroleum Jelly, Distilled Water	Hydrometer, Battery Charger, Battery Tester
10	Inspect Rear Shock Absorber setting & correct if necessary.	RH/LH	0.10					
11	Check Rear brakes for efficient working & adjust if required.	Rear	0.10	14-15 No. O.E. Spanner				Cloth, Graphite Grease, Fine Polish Paper
12	Check and Correct tyre inflation pressure - Rear Wheel.	Rear	0.20	Pencil Type Pressure Gauge				Analogous/Digital Type Pressure Gauge, Air Filling Valve
13	Lubricate chain and Check / Adjust chain slackness if required.	LH	0.40	20-22, 24-27 Ring Spanner, 10-11 No. OE Spanner, Torque Wrench, Socket Set, Oil Can			Cloth, SAE 90 Oil	Air gun
14	Check Choke lever operation	LH	0.05	10-11 No. OE Spanner				
15	Check Accelerator cable free play	LH	0.05	8 & 10 No. OE Spanner				
16	Check & Adjust TPS	LH	0.10	10-11 No. OE Spanner				
17	Check gear shifter lever operation	LH	0.05	8 No. 'T' Spanner				
18	Check & Adjust steering and Handle bar for free movement.	RH / Front	0.20	12-13, 16-17 Ring Spanner				Fork Spanner
19	Check front mudguard alignment wrt Front Wheel	Front	0.05					

Sr. No.	Description	Position	SMM	GP Tools	Special Tools	PNR & its Attachment	Consumables	M & T / Service Shop Equipments
20	Check all important nut bolts for torque and tightness, • Handle bar mounting bolt • Stem lower & upper bracket bolts • Stem of bolts • Front axle nut • Cylinder head nuts • Engine foundation bolts • Trailing arm bolts • Silencer cover shield bolts • Both LH/RH engine mtg. bolts	LH/RH	4.00	12-13, 14-15, 16-17, 20-22 Ring Spanner, 22 mm Box Spanner with Handle Ratchet		Pistol Grip PNR		
21	Check the following and lubricate if necessary • Rear brake lever • Rear brake pedal / cam • Pillion foot rest • Center stand • Side stand • Kick lever boss • Clutch lever	RH/LH FRONT REAR	1.00	Oil Can			SAE 20W40 Oil	
22	OE accessories fitment - Mirrors RH & LH	LH/RH	1.15	17mm OE Spanner				
23	OE accessories fitment - Leg guard	LH/RH	3.25	10-12 No. OE Spanner and 12 No. Box Spanner		Pistol Grip PNR		
24	Start vehicle, Check operation of electrical like- Head light, Tail light, Brake light, Side stand indicator, Horn, Speedometer, Odometer, Side indicators, Parking and Pass light working.	LH/RH	0.35					
25	Check Idling and CO%.	LH/RH	0.60	Small Screw driver				CO-HC Analyzer; Tachometer, Proper Exhaust Sealing Arrangement of Silencer
26	Trip meter working	LH/RH	0.10					
27	Check all locks for proper operation	LH/RH	0.50					
28	Test drive the vehicle, check digital speedometer working. Study the job card and verify work done. Take vehicle out and park.		1.30					
29	Clean/Wash the veh. before delivery		1.00					
	Total SMM		**17.75**					
30	Repair for any other defects seen or observed during test drive.							
Expected Output in 480 Minutes / Man / 27 Vehicles								

Sr. No.	Operation		Whichever comes first	RECOMMENDED FREQUENCY				
				Initial				Subsequent
		OR	Kms.	750	2,500	5,000	7,500	Every 2,500km
			Days	30~45	105~120	195~210	285~300	Every 90 days
1.	Servicing			●	●	●	●	●
2.	Idle speed / CO%	C,A		●	●	●	●	●
3.	Valve tappet clearance	A				●		Every 5000 kms
4.	Engine oil (SAE 20W50 of API SG+JASO MA)	R		●		●		Every 5000 kms
5.	Oil strainer / Centrifugal filter	CL						Every 10000 kms
6.	Air cleaner element V	CL		●	●	●	●	●
7.	Air cleaner element	R						Every 10000 kms
8.	Carburettor	CL,A		●	●	●	●	●
9.	Fuel system leakages	C,R		●	●	●	●	●
10.	Fuel pipes	R						Every Year
11.	Spark plug / gap	CL,A		●	●	●	●	●
12.	Spark plugs (2 Nos.)	R						Every 10000 kms
13.	Battery electrolyte level	C,A		●	●	●	●	Every Year
14.	Brake light switch	C,A		●	●	●	●	●
15.	Clutch play	C,A		●	●	●	●	●
16.	Throttle play	C,A		●	●	●	●	●
17.	Rear brake pedal play	C,A		●	●	●	●	●
18.	Brake lining or pad wear	C,R		●	●	●	●	●
19.	Brake fluid level / top up	C	1 Month	●	●	●	●	●
20.	Brake fluid change	R						Every 10,000 kms.
21.	Steering play	C,A		●	●	●	●	●
22.	All fasteners tightness	C,T		●	●	●	●	●
23.	Engine mounting silent blocks	R						Every 20,000 kms.
24.	Tyre tread wear	C,R			●	●	●	●
25.	General lubrication	L		●	●	●	●	●
26.	Steering stem bearing	L,R	1 year					Every 10000kms
27.	Wheel bearing	C,L	1 year					Every 10000kms
28.	Master cylinder cup and Dust seal	R						Every 2 years
29.	Caliper piston seal and Dust seal	R						Every 2 years
30.	Swing arm pivot pin	L				●		Every 5000kms.
31.	Front fork	C,L		●		●		●
32.	Front fork oil	R						Every 10000kms
33.	Front brake hose	C,R	2 years					
34.	Rr. Shock Absorber- Check gas pressure 7.0+0.5 Kg/cm^2							Every 10000kms
35.	Drive chain	L			Every 500 kms.			
36.	Drive chain slack	A		●	Every 2500 kms.			
37.	Drive chain wear / Remove & Lubricate	C,R				●		Every 5000kms.
38.	Engine compression pressure	C						Every 10000kms
39.	Cylinder head de-carbonising & valve lapping	CL						Every 30000kms
40.	Valve oil seals	R						Every 30000kms

● : Indicates operation to be performed.
★ : More frequent cleaning may be required when driving in dusty condition.

Note: Parts / Lubricants to be replaced as per Periodic Maintenance and Lubrication Chart are mandatory and the same are chargeable to customer.

A - Adjust L - Lubricate
CL - Clean T - Tighten
C - Check R - Replace

Sr. No.	Description	LH/RH Side	SMM	GP Tools	Special Tools	PNR	Consumables	M & T / Service Shop Equipments
1	Wash vehicle thoroughly.	Both		To be done by washing boy				
2	Identify the Vehicle		0.30					
3	Bring vehicle & position on bay		0.50					
4	Raise the lift		0.30					
5	Start veh. & Warm up. Remove RH/LH side covers, Seat, Petrol Tank & keep properly.	LH/RH	0.70	12-13 No. Ring Spanner, 12mm Socket		Pistol Grip PNR		
6	Drain Engine Oil	LH	1.30	16mm Socket, Extension, Tommy & Plastic Tray			Cloth	Oil Draining Equipment
7	Clean Air filter. (Replace - if necessary)	RH	3.00	8mm 'T' Spanner			Cloth, 20W40 Oil, Diesel, Air Filter Element	Filter Cleaning Stand, Air Gun
8	Drain Carburetor. (Overhaul - if required)	LH	1.30	Phillips Screw Driver, Screw Driver, 10mm Nylon Brush, Plastic Tray, 10-11 & 14-15mm OE Spanner	Float Gauge		Cloth, Diesel	Air gun
9	Check Accelerator and adjust	LH	0.40	8-9, 10-11 OE spanner				
10	Clean, Check & Adjust (Replace - if necessary)	LH	2.40	Spark Plug Spanner, Plug Cleaner, Wire Brush	Filler Gauge 0.01~1mm		Cloth, Fine Polish Paper, Spark Plug	Spark Plug Cleaner and Tester, Air Gun
11	Check & Adjust tappet clearance. (if required) During 4th Servicing or after 5000 Km whichever is later.	LH		8-9 No. Ring Spanner, 24-27 OE Spanner, 14 mm Box Spanner with Handle Ratchet, Spark Plug Spanner	Filler Gauge 0.01~1mm Tappet Holder		Cloth	
12	Check • Side bolts of Front fork • Engine foundation bolts • Side stand • RSA top and bottom nuts	LH/RH	0.60	14-15, 16-17, 20-22 Ring Spanner, 12 mm Box Spanner with Handle Ratchet, 12-13 No. OE Spanner		Pistol Grip PNR		
13	Adjust chain slackness & Lubricate. Remove and Clean, If required.	LH / Rear	3.90	10mm 'T' Spanner, 20-22, 24-27 Ring Spanner, 10-11 OE Spanner			Cloth, SAE 90 Oil	Air gun
14	Check/ Adjust	Rear	0.50	20-22, 24-27 Ring Spanner, 10-11, 14-15 OE Spanner			Cloth, Graphite Grease, Fine Polish Paper	Air Gun

Sr. No.	Description	LH/RH Side	SMM	GP Tools	Special Tools	PNR	Consumables	M & T / Service Shop Equipments
15	Check & Adjust Rear tyre air pressure.	Rear	0.40	Pencil Type Pressure Gauge				Analogous / Digital Type Pressure Gauge, Air Filling Valve
16	Check Battery, Top-up distilled water. Clean terminals & apply petroleum jelly. Route cables properly and fit terminal caps properly. Recharge battery if required.	LH	1.80	Screw Driver, Distilled Water Filler, 10mm 'T' Spanner			Cloth, Fine Polish Paper, Petroleum Jelly Distilled Water	Hydrometer, Battery Charger, Battery Tester
17	Clean oil strainer. (Replace - if required) After 1 Year or 10000 Km whichever is later.	RH		8 No. Box Spanner, 12-13 OE Spanner, 12-13 Ring Spanner, 8mm 'T' Spanner. Plastic Tray, Phillips Screw Driver		Pistol Grip PNR	Diesel, cloth, Clutch Cover Gasket, Oil Strainer	
18	Check clutch and Adjust.	RH	0.30	12-13 OE Spanner, Small Screw Driver				
19	Fill engine oil.	RH	1.35	6" Combination Pliers, Measuring Jar 1Liter, Funnel			Cloth, Oil 20W50 of API SG + JASO MA grade	Oil Dispenser
20	Clean, Check & Adjust RH spark plug.	RH	2.40	Spark Plug Spanner, Plug Cleaner, Wire Brush	Filler Gauge 0.01~1mm		Cloth, Fine Polish Paper, Spark Plug	Spark Plug Cleaner and Tester, Air Gun
21	Check and Top-up brake fluid level.	Front	1.00	Phillips Screw Driver			Cloth, Oil Dot-4	
22	Check/ Adjust	Front	0.50	12-13 Ring Spanner, 5 & 10 mm Allen Key			Cloth, Fine Polish Paper	Air Gun
23	Check & Adjust front tyre air pressure.	Front	0.40	Pencil Type Pressure Gauge				Analogous / Digital Type Pressure Gauge, Air filling Valve
24	Check and Adjust steering.	Front	0.80	16-17 No. Ring Spanner	Fork Spanner			
25	Check • Engine foundation bolts • Front axle nut • Side bolts of Front fork • Handle bar bolts • RSA top and bottom nuts • Swing arm axle nut • Silencer protective cover screws / bolts • Rear view mirror	RH	1.30	10-11, 12-13, 14-15, 16-17, 20-22 No. Ring Spanner, 22 mm Box Spanner with Handle Ratchet		Pistol Grip PNR		

Sr. No.	Description	LH/RH Side	SMM	GP Tools	Special Tools	PNR	Consumables	M & T / Service Shop Equipments
26	Lubricate • Clutch lever • Rear Brake pedal • Rear Brake Cam • Pillion Foot Rest • Center Stand • Side Stand • Kick lever boss pin	LH/RH	0.80	Oil Can			20W40 Oil, Graphite Grease, Cloth	Grease Gun
27	Refit RH, LH side covers, Seat, Petrol tank	LH/RH	0.50	12-13 No. Ring Spanner, 12mm Socket		Pistol Grip PNR		
28	Check and Clean fuel line & Clean petrol tank. (Replace fuel pipe - if required)	LH	0.50					Air Gun
29	Check all Meters for proper functioning & Correct, if reqd.	Front	0.50					
30	Start vehicle, Check & Adjust the following.	RH	0.95					
	Head light.	Front		Screw Driver				
	Tail light.	Rear		Phillips Screw Driver				
	Brake light.	RH/Rear						
	Horn	Front						
	Speedo, Pass, Parking light	Front						
	Side Indicators - Front & Rear	Both						
30	Tune Engine & Carburetor.	LH	2.00	Small Screw Driver				CO-HC Analyzer, Tachometer, Proper Exhaust Sealing Arrangement of Silencer
31	Study Job Card. Verify work.		1.00					
32	Lower the Lift		0.30					
33	Take vehicle out and park		0.50					
	Sub Total		**32.50**					
34	Carry out any additional work as indicated by the Customer or as required.		10.00					
	Total SMM		**42.50**					
	Expected Production / 480 minutes / Man / 11							
35	Test Ride of the Vehicle if required and park.		1.5	To be Carried out by Expert				
36	Clean the vehicle at the time of delivery.		1	Will be done by Delivery boy				

PNR = Pneumatic Nut Runner

Periodic Part Replacement Kit for Free Services

Type of Service	Days	Kms. Limit	Part Name	Quantity
1st Free	30~45	500~750	Engine oil	1000 ml.
			Clutch cover gasket	1
2nd Free	105~120	2000~2500	NIL	NIL
3rd Free	195~210	4500~5000	Engine oil	1000 ml.
1st Paid	285~300	7000~7500	NIL	NIL
2nd Paid	375~390	9500~10000	Engine oil	1000 ml.
			Clutch cover gasket	1
			Air filter foam element	1
			Spark plug	2
			Fork oil	330 ml.
			Drive chain lock & link set	1
			Brake shoes (if worn out)	1
			Starter clutch bush	1
			Fork oil seal	2
			Cylinder head gasket (If required)	1
			Front disc pad inspect / replace (If worn out)	1
3rd Paid	465~480	12000~12500	NIL	NIL
4th Free	555~570	14500~15000	Engine oil	1000 ml.
			Drive chain lock & link set	1
			Steering cone kit	1
4th Paid	615~630	17000~17500	NIL	NIL
5th Paid	705~720	19500~20000	Engine oil	1000 ml.
			Clutch cover gasket	1
			Air filter foam element	1
			Spark plug	2
			Brake shoes (if worn out)	1
			Front disc pad inspect / replace (If worn out)	1
			Fork oil	330 ml.
			Clutch plate	1
			Rear brake damper	1
			Drive chain lock & link set	1
6th Paid	795~810	22000~22500	NIL	NIL
7th Paid	885~900	24500~25000	Carburettor insulator	1
			Chain sprocket kit	1
8th Paid	975~990	27000~27500	NIL	NIL

Periodic Part Replacement Kit for Free Services				
Type of Service	**Days**	**Kms. Limit**	**Part Name**	**Quantity**
9th Paid	1065~1080	29500~30000	Engine oil	1000 ml.
			Clutch cover gasket	1
			Air filter foam element	1
			Spark plug	2
			Valve oil kit	1
			Cylinder head gasket	1
			Cylinder head stud copper washer	4
			Brake shoes (If worn out)	1
			Front disc pad inspect / replace (If worn out)	1
			Steering cone kit	1
			Fork oil	330 ml.
			Drive chain lock & link set	1

Use always Genuine Bajaj Auto parts & recommended lubricants.
(Engine oil: SAE 20W50 API 'SG' + JASO 'MA' grade)

Notes :

Cleaning

The vehicle must be cleaned periodically using pressurized water. Before cleaning the vehicle cover the important parts like Ignition switch, Silencer Tail end, CDI unit, H.T. coil with plastic bags. Don't apply the jet of water directly on electrical parts such as Switches, Ignition unit, Coils etc. otherwise they may get damaged.

Brushing with kerosene and wiping dry with clean rag is advisable for external cleaning of the engine. All painted surfaces should be washed with water. Do not use kerosene or hard detergent soap on painted surfaces as it damages the paint and turns it dull.

After washing, dry the vehicle with compressed air and carry out the lubrication as recommended

Caution : Water may enter on the brake liners during washing & brake slippage may occur. Ensure that brake liners are dry before driving the vehicle.

Periodic Maintenance

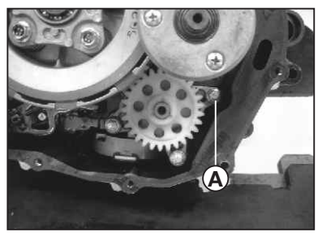
Periodic maintenance (in accordance with the periodic maintenance chart) of a vehicle is most important to prolong vehicle life, trouble free running and ensure your safety while driving.

Engine Oil Level Checking

- Park the vehicle on level surface on center stand to check the oil level.
- Inspect the oil level through oil inspection window
- It should be in between upper and lower mark
- Top up if required

Recommended Oil Grade and Qty	
Grade	SAE 20W50 of API 'SG' + JASO 'MA'
Quantity	Drain & Refill 1000 ml. Engine Overhaul 1100 ml.

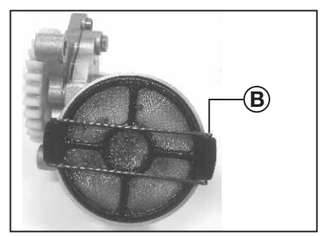
Note : It is most vital to adhere to recommended frequency of oil change for the purpose of long life of critical engine components for details refer Periodic Maintenance Chart.



Oil Strainer Cleaning

Remove :

- Drain engine oil.
- Clutch cover
- Oil pump mounting bolts **(A)** (3 Nos.)
- Pump with strainer.
- Clip (B) and take out 'Oil Strainer' from oil pump.



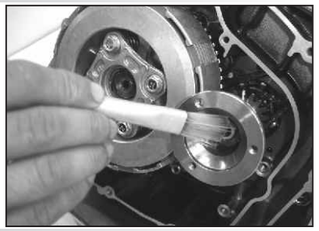
Remove :

- Clean oil strainer with Kerosene / Diesel blow compressed air and then refit it.
- Replace oil strainer if found damaged.

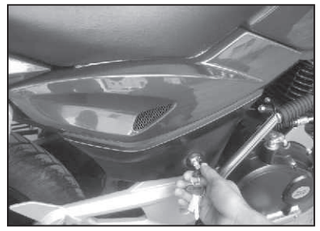
Centrifugal Oil Filter Cleaning:

Remove :

- Centrifugal oil filter cover mounting screws (C) 3 Nos.
- The cover with gasket
- Replace gasket if damaged
- Clean centrifugal oil filter using Nylon brush/kerosene or Diesel



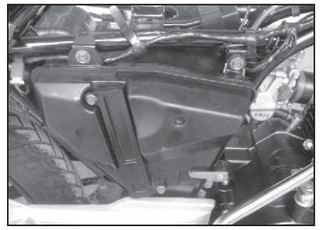
Air Filter



Air Cleaner Element Removal

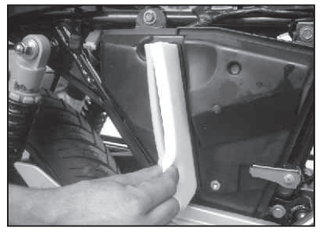
Remove :

- RH side panel by unlocking it with key



Remove :

- 2 bolts (A).
- Air filter cover (B).



Remove :

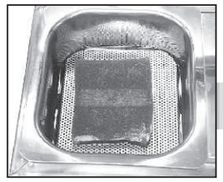
- Air filter element assembly along with catrej
- Seperate foam filter from the catrej

Note :

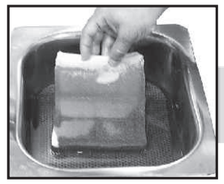
- No need of removing flame arrestor
- White colour filter portion towards carburettor side
- Ensure beading placed properly when fitting cover

Air Filter Cleaning

Clean Air filter element adhering to standard SOP

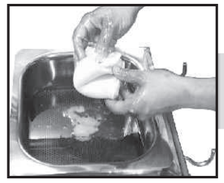


1st Stage:
Clean with Kerosene



3rd Stage:
Dip into Engine Oil (20W40)

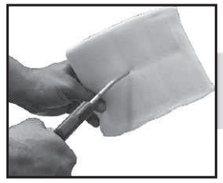
Squeeze



Squeeze and Remove Excess Oil

2nd Stage:
Clean with Kerosene Again

Dry with Cotton Cloth



Blow Low Pressure Compressed Air

Air Filter Element Cleaning and Inspection

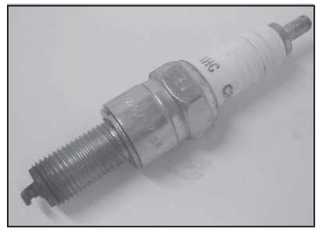
Note : In dusty areas, the element should be cleaned more frequently than the recommended interval.

After riding through rain or on muddy roads, the element should be cleaned immediately.

Since repeated cleaning opens the pores of the foam element replace it with a new one in accordance with the Periodic Maintenance Chart. Also if there is a brakage in the element material or any other damage to the element replace the element with a new one.

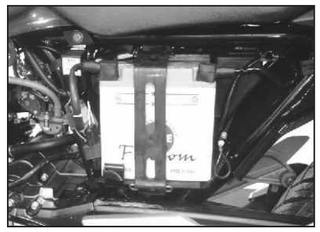
Warning : Clean the element in a well-ventilated area, and make sure that there are no sparks or flames anywhere near the working area.

Because of the danger of highly flammable liquid, do not use gasoline/petrol or a low-flash point solvent to clean the element.



Spark Plug

Recommended Spark Plug	Champion RG4HC / Bosch UR3DC
Electrode Gap	0.7 ~ 0.8 mm
Replace Spark Plug	After every 10000 Kms.



Battery - 12V - 9 Ah

- Battery is located inside LH cover
- Check the electrolyte level in each cell and ensure that the level is between the upper and lower level lines.
- Remove the battery filler caps and fill with distilled water until the electrolyte level in each cell reaches the upper level line if required.

Note : Add only distilled water to the battery. Tap water is not a substitute for distilled water and will shorten the life of the battery.

- Apply petroleum jelly on to the terminals

Front Brake Fluid Level

- Front brake fluid master cylinder reservior is located near RH switch on handle bar.
- To check oil level, park the vehicle on Main / Center stand with handle bar in straight position.
- Always ensure that brake fluid level is above 'MIN' mark given on inspection window.
- Use only DOT-3 or DOT-4 brake fluid (from sealed container) to top up if required.

Note : It is advisable that brake fluid should be replenished **once** in a year.

Rear Shock Absorber

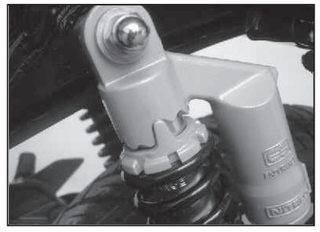
The rear shock absorbers can be adjusted to one of five positions to suit riding conditions. Using special tool adjust the required position you desire. They can be left soft for average road riding condition but should be adjusted harder for rough road condition.

Shock Absorbers adjusted either too soft or too hard adversely affect riding comfort and stability.

To adjust the Rear Shock Absorbers

Turn the adjusting sleeve on each shock absorber to the desired position. The higher the adjuster sleeve is positioned, the stronger the spring tension, and the harder the ride.

Check to see that both sleeves are turned to the same relative position.



Position	1	2	3	4	5
Spring Action	Stronger →				

If the Shock Absorber sleeves on both sides are not adjusted to the same position, an unsafe riding condition may result.

Note : Std setting is done in 2nd notch

Nitrox Air Filling

Procedure for gas checking and Refilling

- Remove the Phillips-headed small screw and 'O' ring.
- Clamp the cylindrical guide clamp on to the canister keeping the rubber plug in the center to support the syringe needle insertion and keeping in position.
- Hold the pump as shown and pierce the syringe needle into the center of rubber plug.
- The molded needle adaptor will rest into the clamped cylindrical guide
- Read the gas pressure on the dial gauge. If the gas pressure is below 6.5 Kg/cm2 refill the air by pumping, keeping the needle in as it is condition without removal. As the natural air consists of 71% of nitrogen it will serve the purpose.
- To fill the air into the canister, apply full stroke of pump as shown; otherwise air will not get inflated into the pump.
- Keep on pumping the air unless you get 7.5 kg/cm2 on the gauge
- Pull out the air pump along with needle carefully and take out the guide clamp
- Finally fix the phillips headed screw with 'O' ring.

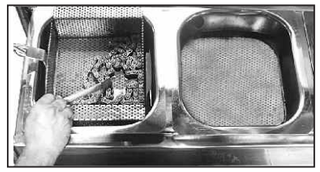
Drive Chain Slack / Lubrication

- Set the motorcycle upon its center stand.
- Rotate the rear wheel to find the position where the chain is tightest & measure the vertical movement midway between the sprockets.
- If the drive chain is too tight or too loose, adjust it so that the chain slack will be within the standard value.
- Check drive chain slackness at every 1000 kms.

Drive Chain Slackness : 25 ~ 30 mm

Service Limit 35 ~ 45 mm

Drive Chain Cleaning / Lubrication

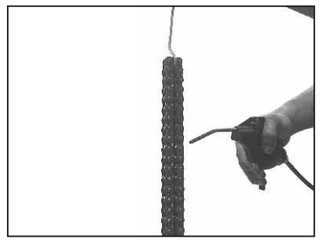


1st Stage:

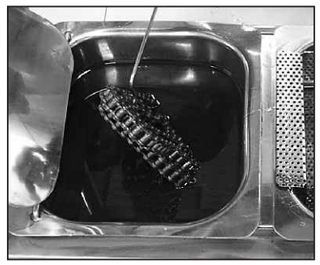
Clean with Kerosene

2nd Stage:

Clean with Cleaner Kerosene again



Blow Compressed Air



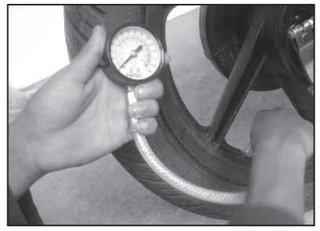
3rd Stage:

Dip into SAE 90 Oil

Soak into SAE 90 Oil

Final Stage:

Hook Chain for dripping of excess oil

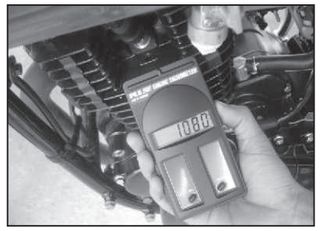


Tyre Air Pressure

- Keep appropriate tyre pressure as mentioned below to increase life of this tyre and for better fuel consumption.

Front	1.75 Kg/cm^2 (25 PSI)
Rear - with Solo	2.00 Kg/cm^2 (28 PSI)
Rear - with Pillion	2.25 Kg/cm^2 (32 PSI)

Important Adjustments and Checking Procedures

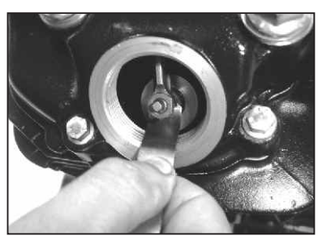


Idling Speed Adjustment

Whenever the idling adjustment is disturbed follow the procedure given below for setting proper engine idling.

- Start engine & drive it for at least 5 kms. or warm the engine till the oil temp reaches 60^{0}C.
- Remove the Bolt/Plug near Exhaus TEC
- Connect the probe of CO analyser. Set the CO between 1.75 ~ 2.25% by adjusting volume control screw.
- Then set the engine idling r.p.m. by rotating the idle adjustment screw clockwise or anticlockwise by hand.
- For the precise adjustment of idling speed, use of tachometer is recommended.
- Rotate the throttle a few times to make sure that the idling speed does not change. Readjust if necessary.
- Do not attempt to compensate for faults in other systems by adjusting the idle speed.

Idling Sped : 1400 $\pm$ 100 rpm



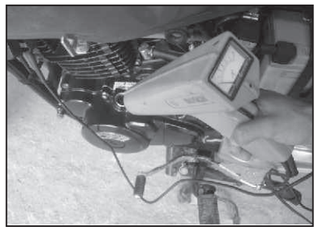
Tappet Clearance Setting

- Ensure that the engine is cold.
- Ensure the 'T' mark on the 'Rotor' match with the mark on the 'Crankcase LH'. At this stage the 'Piston' is at TDC and both the 'Tappets' are free.
- Holding tappet screw firmly with special tool loosen the tappet screw nut.
- Put the feeler gauge, measure and adjust the clearance.
- Lock the nut holding screw with special tool after getting desired clearance.
- Again check the tappet clearance with gauge. The gauge should slide with slight resistance between tappet and valve stem head feeler and tighten the check nut with a spanner.

• Inlet Valve : 0.05 mm • Exhaust Valve : 0.1 mm

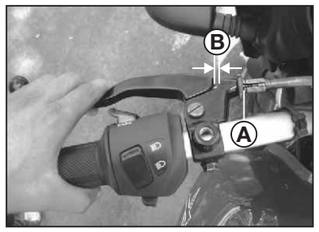
Special Tools : Feeler Gauge - 69 7502 51

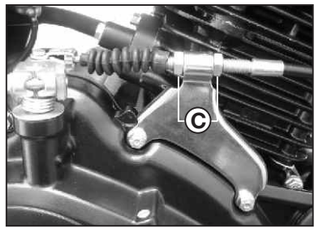
: Valve Adjusting Screw Holder - 37 1031 53



Ignition Timing Inspection

- Connect cable of stroboscope to one of the H. T. Coil carrying current to spark plug.
- Start the engine.
- Aim the stroboscope light at Magneto cover glass window.
  - At idling speed the 'F' marked line on the rotor coincide with the line mark on magneto side c'case. (10^0 BTDC @ 1500 rpm).
  - As the engine rpm is increased the 'A' marked on the rotor coincide with the line mark on magneto side c'case. (28^0 BTDC @ 3500 rpm).
  - This indicates the advance timing is functioning correctly.
  - Remember the 'T' marked line is a reference line for TDC position of the piston and is not for Ignition timing.

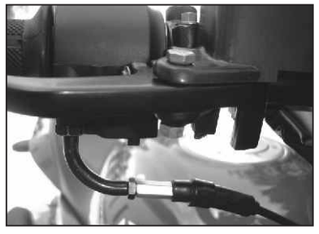


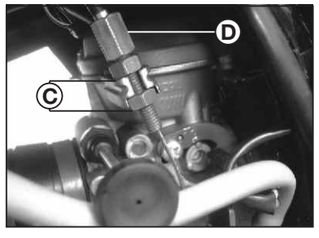


Clutch Lever Free Play Adjustment

- Slide the dust cover at lever yoke end.
- Check that the clutch cable outer end is fully seated in the adjuster.
- Turn the adjuster (A) until the proper amount of free play can be obtained.
- Tighten the lock nut (B) against the adjuster. If the clutch free play cannot be adjusted with the adjuster at the handle bar end, use the adjuster at the lower ends of the clutch cable situated on clutch cover.
- Loosen the 2 lock nuts (C) on clutch cable bracket and adjust threading in the adjuster provided on the clutch cover. Tighten both the lock nuts on clutch cable bracket by holding one nut and tightening the other, after the required free play.

Clutch Lever Free Play : 2 ~ 3 mm

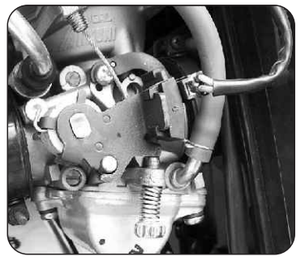




Accelerator Free Play Adjustment

- Turn the adjuster (A) until the proper amount of free play can be obtained.
- Tighten the lock nut (B) against the adjuster.
- If the accelerator free play can not be adjusted with the adjuster at the handle bar end, use the adjuster at the lower ends of the Accelerator cable situated on carburettor.
- Loosen the 2 lock nuts (C) on accelerator cable bracket end adjust by adjuster (D) provided on the cable.
- Tighten both the lock nuts on bracket by holding one nut and tightening the other, after ensuring the required free play.

Accelerator Grip Free Play : 2 ~ 3 mm



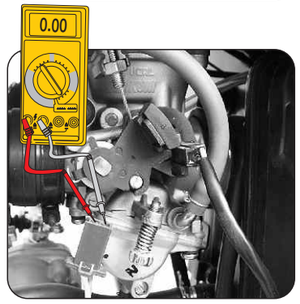
Reed Switch Setting and Checking

Check throttle lever movement by rotating it with hand. It should not be sticky in operation and should return back it self on releasing. bracket Multimeter should show continuity.

- Magnet should not touch with reed switch.
- Gap between Magnet & Reed Switch should not be more than 2.5mm.
- Movement of throttle lever with magnet assembly and Reed Switch fitted should be free.

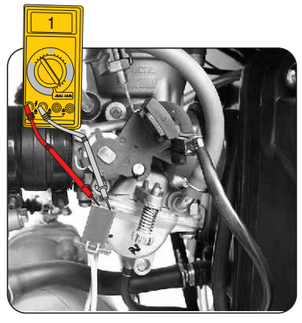
Reed Switch : Setting

- Accelerator cable play: 2-3 mm by adjusting the Adjuster
- Protude stopper of the throttle lever bracket must on idling screw tip.

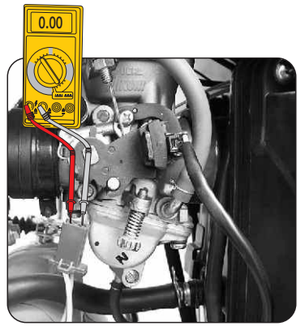


Reed Switch : Checking

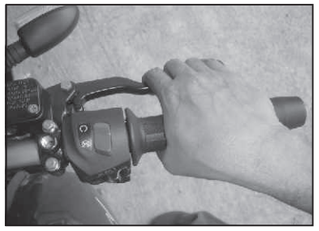
- Keep throttle at zero position.
- On connecting multimeter to Reed Switch coupler it should show continuity.



- When throttle is open and Reed Switch magnet crosses to straight edge of fix bracket of Reed Switch multimeter should show discontinuity.



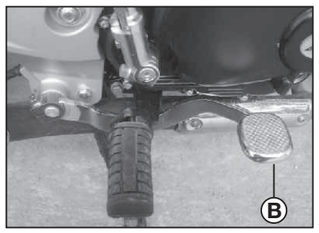
- On De-acceleration, when of Reed Switch magnet re-coinsides with straight edge of fix bracket of Reed Switch Multimeter should show continuity.



Front Brake Free Play Adjustment

There is no need for free play adjustment, since the pistons in caliper assembly will move towards the pads and take new positions in order to automatically compensate for pad wear. The free play will be approximately 2 ~ 3 mm.

Front Brake Lever Play : 2 ~ 3 mm.

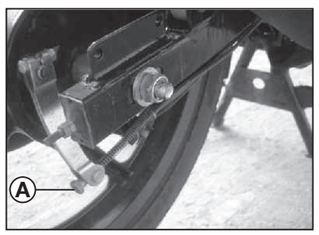


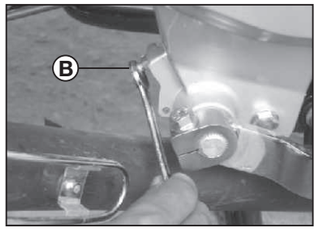
Rear Brake Pedal Adjustment

Check the rear brake pedal play as stated below. If it is more or less than the standard, adjust the rear brake.

- Depress the rear brake pedal lightly by hand. This is free play.
- If the rear brake pedal free play is incorrect, adjusting the rear brake shoe adjuster nut (A).
- Operate the pedal (B) for few times to see that it returns to its rest position immediately upon release.
- Rotate rear wheels to check for brake drag.
- Check braking effectiveness.
- If there is any doubt as to the conditions of the brake, check the brake parts for wear or damage.
- Turn the adjuster until the rear brake pedal have the correct amount of play.

Rear Brake Pedal Play : 25 ~ 30 mm.



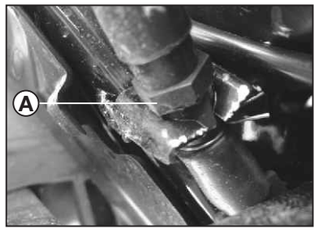


Rear Brake Pedal Position Adjustment

To suit rider foot comfort / operating style the angle of the rear brake pedal can be adjusted by loosening the lock nut (A) and adjusting the bolt (B).

Ensure free play by turning the adjuster clockwise or anticlockwise to achieve specified free play. Fix the rubber sleeve on the bolt.

Note : After pedal position adjustment, it is necessary to set the free play.



Rear Brake Light Switch Adjustment

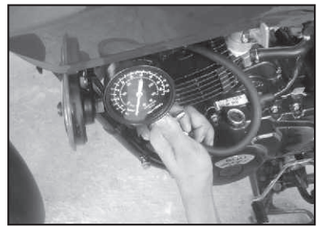
When either the front or rear brake is applied, the brake light glows on. The front brake light switch requires no adjustment but the rear brake light switch should be adjusted in accordance with the periodic maintenance chart.

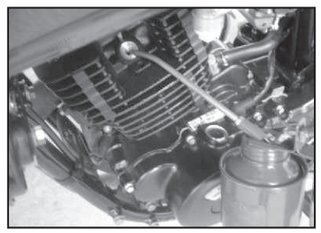
Inspection :

- Turn on the ignition switch. The brake light should go on wheel the front brake is applied.
- If it does not, then inspect the front brake light switch.
- Check the operation of the rear brake light switch by depressing the brake pedal. The brake light should glow after about 15 mm of pedal travel.
- If it does not, adjust the rear brake light switch.

Adjustment :

- Adjust the rear brake light switch (A) by rotating the switch nut to create adequate tension in spring to operate the switch.





Compression Pressure Testing

- For testing the compression pressure first warm up the engine.
- Remove the spark plug. LH side.

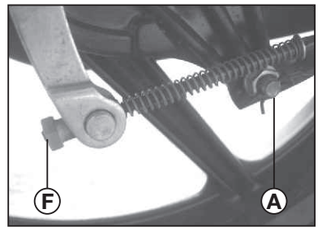
Caution : Disconnect H. T. lead cable from second spark plug i.e. RH side.

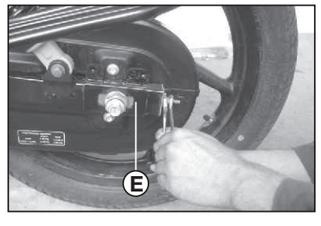
- Fit the compression gauge with adapter in the Spark plug hole.
- Open the throttle fully – then kick 5 times instantaneously.
- Note the reading in the compression gauge.
- Release the pressure by pressing the release valve on hose pipe.
- Take average of 3 such readings for noting actual compression pressure.
- Confirm the compression pressure is between 6 to 10 Kg/cm^2

Wet Compression Test :

- If the compression pressure is found below lower limit than specified, put few drops of engine oil through the spark plug hole and again check compression pressure.
- If you find considerable increase this time, then cause for the low compression pressure lies in Cylinder / Piston assembly.
- If compression pressure remains the same, then the cause for low compression pressure lies in Cylinder / Head assembly.

Caution : If wet compression is done, remove second spark plug and clean thoroughly to avoid oil fouling before fitment.

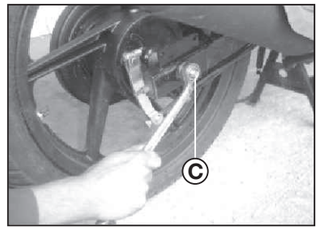




Chain Slack Adjustment :

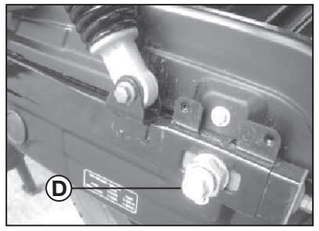
- Set the motorcycle upon its centre stand.
- Rotate the rear wheel to find the position where the chain is tightest and measure the vertical movement midway between the sprockets.
- If the drive chain is too tight or too loose, adjust it so that the chain slack will be within the standard value i.e. 25-30 mm.
- Loosen the rear torque link nut (A) & rear brake adjusting nut (F).
- Loosen the left and right chain adjuster lock nuts (B).
- Loosen the axle nut (C).
- Loosen the bearing carrier nut (D).
- If the chain is too tight, back out the left & right chain adjusting nuts evenly & kick the wheel forward until the chain is too loose.
- Turn both chain adjusting nuts evenly until the drive chain has the correct amount of slack. To keep the chain and wheel properly aligned, the notch (E) on the left chain adjuster should align with the same swing arm mark that the right chain adjuster notch (E) aligns with.

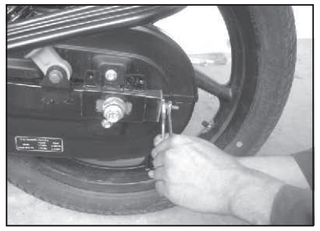
Warning : Misalignment of the wheel will result in abnormal wear, and may result in unsafe riding condition.

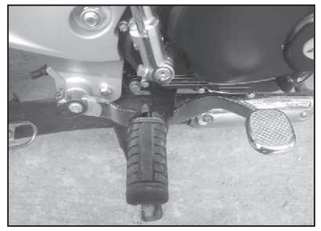


- Tighten both chain adjuster lock nuts.
- Tighten the sleeve nuts securely.

Warning : Tighten the bearing carrier nut before tightening the axle nut. If the nut tightening order is reversed, the rear axle will not be securely mounted on the swing arm. This may cause misalingment of the wheels and result in loss of control.



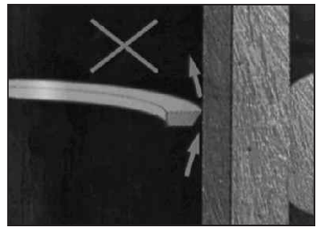


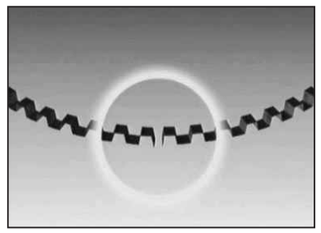


- Center the brake panel assembly in the brake drum. This is done by tightening the axle nut lightly, spinning the wheel, and depressing the brake pedal forcefully. The partially tightened axle nut allows the brake panel assembly to center itself within the brake drum.
- Tighten the Axle Nut
- Tighten the torque link nut
- Fix the snap ring
- Adjust the correct brake play

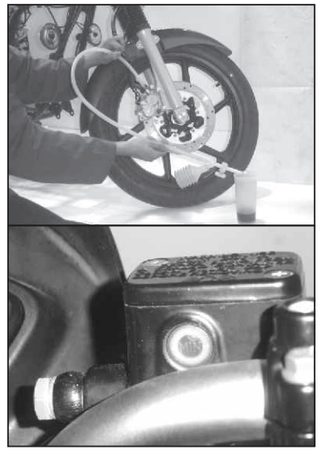
Note : This procedure can prevent a soft or spongy feeling brake.

Piston Ring Fitment :





- Piston rings must always be fitted with respect to exhaust mark on the piston.
- First place the bottom oil rail ring with end gap 28^0 towards left of the exhaust mark in the last groove.
- Place oil expander ring with butting end downward and end gap facing opposite to the exhaust mark.
- Now fit top oil rail ring on the expander ring with end gap 30^0 towards right of the exhaust mark.
- Fit the second piston ring with ‘Top 2’ mark facing upward and end gap facing opposite to the exhaust mark.
- Finally fit the first ring with ‘Top 1’ mark upward and end gap facing towards the exhaust mark.
- Remember fitment of 2nd ring upside down may lead to passing of oil above the piston and ultimately leading to smoky exhaust.



Air Bleeding of Disc Brake System :

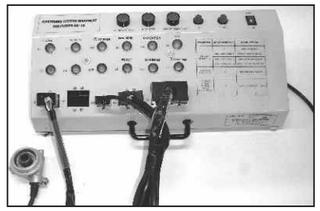
- For air bleeding from front Hydraulic brake system first top up the master cylinder with hydraulic oil.
- Operate the brake lever slowly in order to get filled the oil in the circuit.
- Connect transparent tube to the bleeder screw at caliper
- Operate the brake lever and keeping in pressed position loosens the bleeder screw so that some oil escapes with the air bubbles.
- Keep on operating the brake lever till the air bubble escape out completely through bleeder screw, and top up the master cylinder if required.
- Once the air escapes out from the hose pipe the brake lever meets resistance, which indicates completion of air bleeding
- After completing the bleeding, top up the master cylinder up to the maximum level mark.

Nitrox Air Filling

- Remove the Phillips head screw & small ‘O’ ring fitted on air valve of Nitrox RSA.
- Fix the guide to canister of Nitrox shocker in such a way that guide hole is concentric with air filling valve.
- Insert the Nitrox air filling pumps needle end into the guide & carefully pierce the rubber pin fitted inside the air valve of Nitrox RSA.
- Note the pressure indicated by pressure gauge of Nitrox air pump. Refill the pressure.
- Once the pressure reaches upto 7.5 Kg/cm^2, take out the needle slowly from canister.
- Fit the Phillips head screw & small ‘O’ ring fitted on air valve of Nitrox RSA.

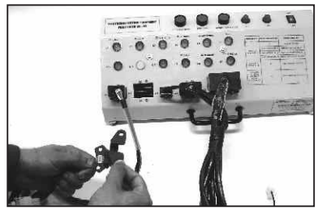
Power Up the Jig

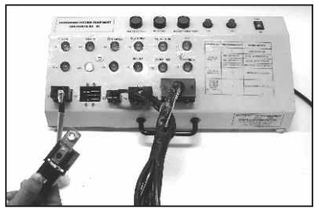
The Jig should carry out a self test, where first all Red LED; glow sequentially and then all Green LED; flash twice.

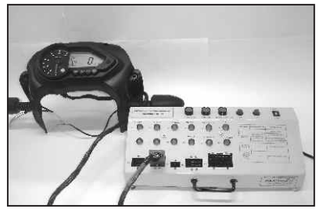


Manual Testing

- Connect wiring harness to C1 connector.
- Through this harness the following testing can be carried out :
  - Vehicle sensor speed.
  - Hall sensor.
  - Starter relay.

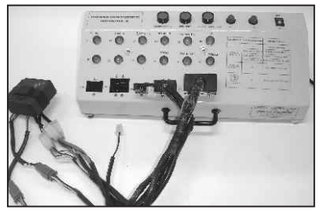






LCD Speedo Console Test

- Connect wiring harness number 2 to C2 connector.
- After connecting speedo console wait unitl console LCD goes blank.
- Now press speedo console test switch to start the test.
- Observe for working of speedo console till test ends.



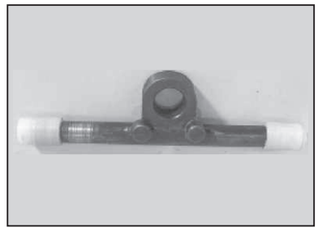
Body Control Unit (BCU) Test

- Connect wiring harness number 3 to C3, C4 and C5 connectors respectively.
- Press the BCU test switch.
- At the end of complete test, Green colour glowing of 'Result' LED indicates BCU test passed.
- At the end of complete test, Red glowing of 'Result' LED indicates BCU test failed at respective Red indications.

Details of Exclusive Special Tool

For carrying out repairs / overhauls, 1 new special tools for Pulsar DTS-i UG III have been developed. Rest of the special tools required remains the same which were earlier required for Pulsar and Pulsar DTSi

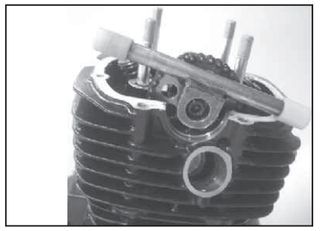
Engine

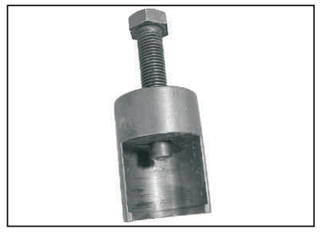


Sprocket Catcher

Drawing No.:
37 10DH 36

Application :
For holding sprocket during removal / refitting of Cam sprocket allen bolt.

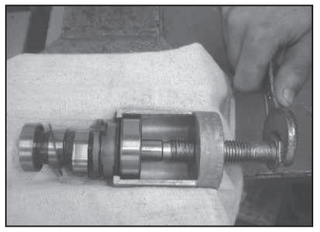


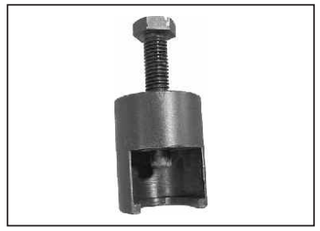


Camshaft Big Bearing Puller

Drawing No.:
37 10DH 32

Application :
To remove bearing (Decompression assembly side) of camshaft.

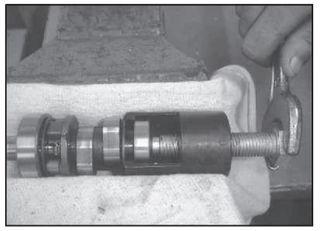




Camshaft Small Bearing Puller

Drawing No.:
37 10DH 31

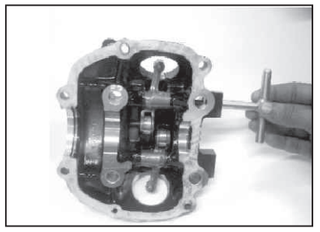
Application :
To remove small bearing of camshaft.

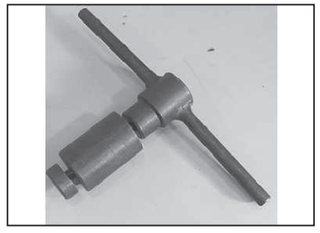


Rocker Pin Remover

Drawing No.:
37 10DH 35

Application :
To remove rocker pin from cylinder head.

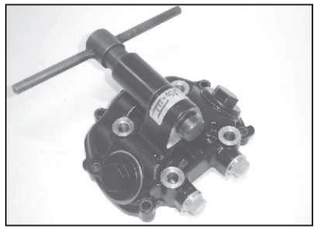




Silent Bush Puller

Drawing No.:
37 10DH 33

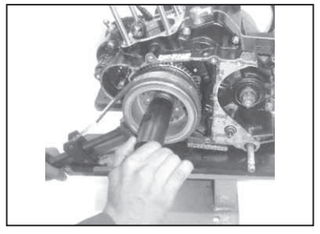
Application :
To remove silent bush from cylinder head cover.

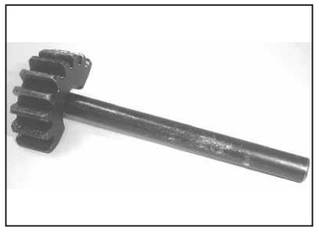


Rotor Puller with Butt Pin

Drawing No.:
37 10DJ 32

Application :
Used to pull out the rotor from crankshaft assembly.

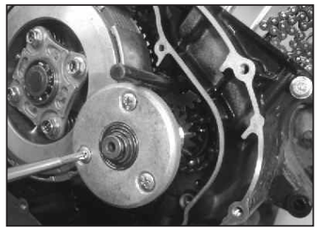


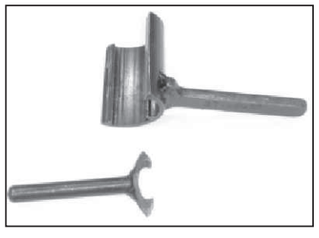


Primary Gear Holder

Drawing No.:
37 10DJ 28

Application :
Use to hold primary gear while loosening / tightening the clutch nut.

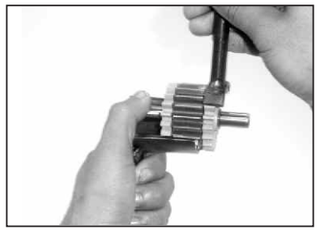




Balancer Gear Holder

Drawing No.:
37 10DJ 63

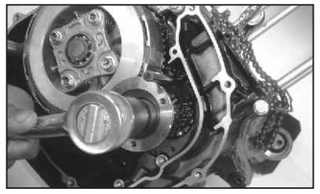
Application :
Used to load the pre-tensioned scissor gears of Assly balancer Idler gear.



Special Nut

Drawing No.:
37 10DJ 43

Application :
Used to remove / fit of centrifugal oil filter nut.

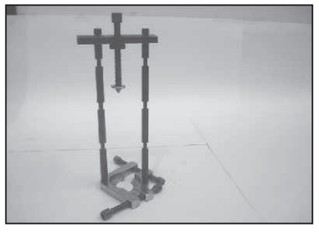


Note : Existing tool can be used by reducing diameter to 25.9 ± 0.1 mm

Piston Ring Holder

Drawing No.:
37 10DJ 30

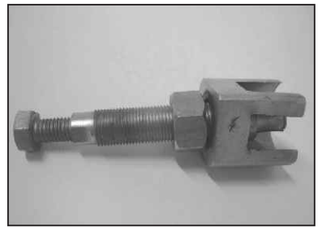
Application :
Used for compressing the piston rings when assembly piston in the cylinder block.



Bearing Race Extractor

Drawing No.:
37 00DJ 01

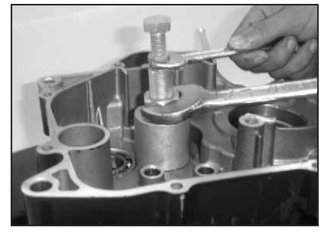
Application :
Used for removing the lower bearing race from 'T'

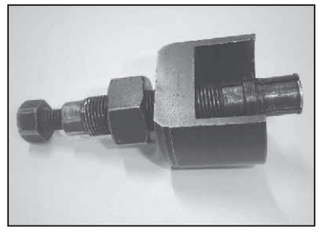


Bearing Extractor

Drawing No.:
37 10DJ 76

Application :
Used to extract the input shaft bearing from crankcase LH.

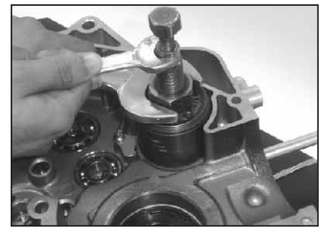


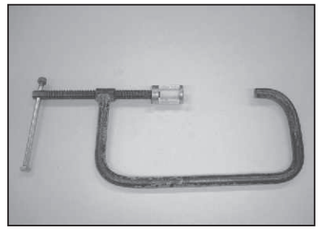


Bearing Puller

Drawing No.:
37 10DJ 77

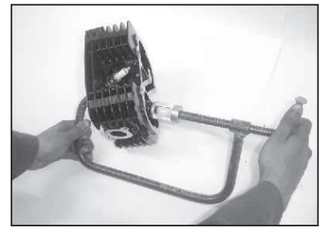
Application :
Used to pull out the bearing for body balancer from crankcase LH.

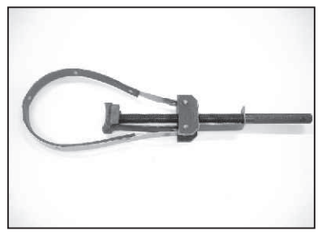




Adaptor & Valve Spring compressor

Adaptor - Drawing No.: 37 10DJ 78
Valve Spring Compressor - Drawing No.: 37 1031 07
Application :
Used for assembling / dismantling inlet, exhaust valves by compressing spring in cylinder head.

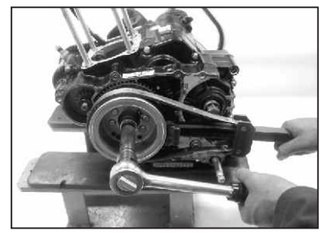




Rotor Holder

Drawing No.:
H6 0721 00

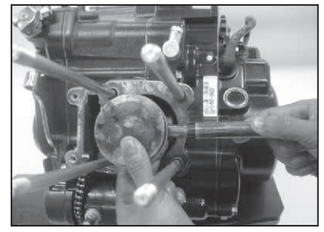
Application :
To hold rotor while loosening bolt.



Drift

Drawing No.:
74 9309 89

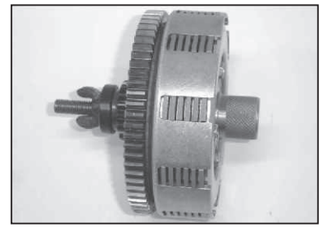
Application :
To remove piston pin.



Thrust plate aligner/holder

Drawing No.:
T-1011168

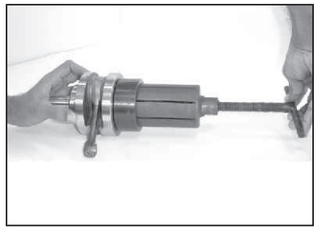
Application :
To align the clutch hub concentricity w.r.to clutch wheel, clutch housing and thrust plate

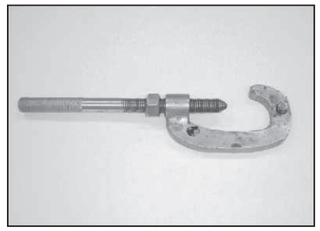


Crankshaft Bearing Extractor

Drawing No.:
37 1001 14

Application :
To remove bearing from crankshaft

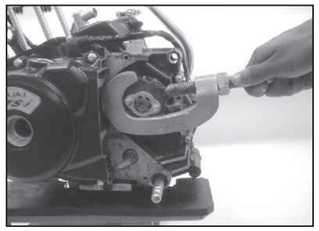


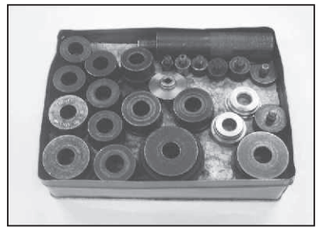


Output Sprocket Holder

Drawing No.:
37 1030 53

Application :
To hold the output sprocket while removing sprocket bolt

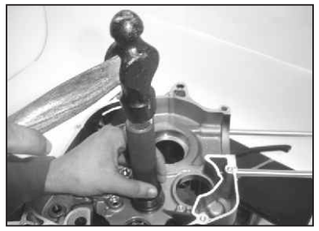




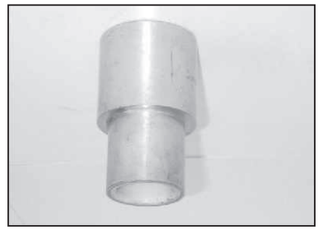
Bearing Driver Set

Drawing No.:
37 1030 61

Application :
Common bearing driver set for fitting and removing bearings from crankcase.



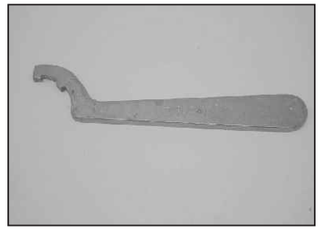
Chassis



Fork oil seal fitment punch

Drawing No.:
37 0040 03

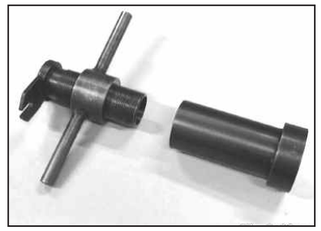
Application :
To fit fork oil seal on outer pipe



Rear Shock absorber adjuster

Drawing No.:
37 00DH 14

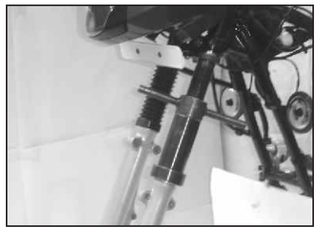
Application :
For adjusting the notch position of RSA to achieve hard or soft rear suspension

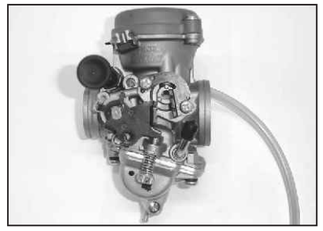


Fork Inner & Outer Tube Extractor

Drawing No.:
74 9310 15

Application :
Used for removing front fork inner tube from outer tube.



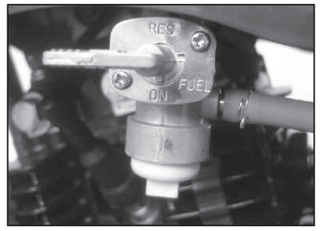


Carburettor

Specifications :

Item	Pulsar 180cc
Make and Type	Ucal-Mikuni BS29
Identification No.	DJ - U3
Idling Speed	1400 ±100
VC Screw setting	2.5 ±2 turns out
Main Jet	117.5
Jet needle mark	4DHL42
Needle jet mark	922MP-1
Jet needle clip position	2nd from top
Pilot Jet	17.5
Starter jet	Fixed type
Throttle valve	Fixed type
Chock Lever	2 stage with push pull type mechanism

Notes :



Fuel Tank

- Turn the fuel tap to the off position.
- Disconnect the fuel pipe connections from the petrol cock.
- Disconnect the fuel indicator wiring harness connection.

Remove :

- Side cover LH and RH by unlocking it with key.

Note : To remove the side covers LH and RH, unlock with the key then hold the front end of the cover and pull the front end out then pull the cover in forward direction to remove it from the lug.

Remove :

- **Pull the cable from the cover LH to unlock the seat lock**
- Seat assembly

Note : To remove the seat assembly hold the seat assembly and lift it from the rear end and pull it back.

Remove :

- 1 bolt (A).
- Fuel gauge wiring connection.
- Drain pipe connection.
- Fuel pipe connection.
- Fuel tank assembly

Note : To remove the fuel tank assembly from the chassis lift the fuel tank assembly by holding it at the rear end and pull it back.

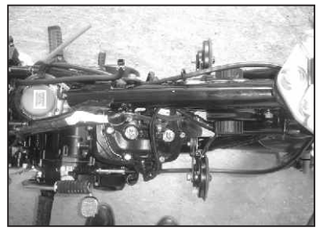
Fuel Tank Inspection

Remove the hoses from the fuel tank, and open the tank cap. Check to see if the breather pipe and water drain pipe in the tank for clogging. If they are clogged, remove the tank and drain it, and then blow pipes free with compressed air.

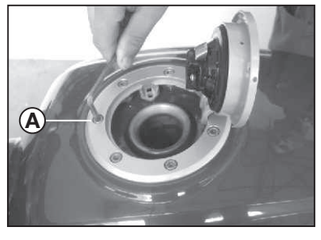
Fuel Tank Cleaning

Warning : Clean the tank in well ventilated area, and take care that there are no smokes or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low-flash point solvents to clean the tank.

- Remove the fuel tank and drain it.
- Pour some high-flash point solvent into the fuel tank and shake the tank to remove dirt and fuel deposits.
- Pour the solvent out of the tank.
- Dry the tank and the fuel tap with compresses air.
- Install the fuel tank.



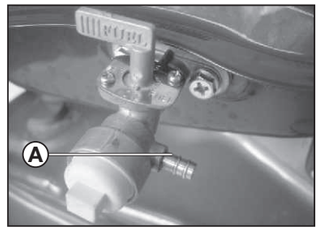
Note : While installing the fuel tank on chassis make sure that the dampers (A) on petrol tank are mounted on the chassis.



Fuel Tank Cap Dismantling

To unlock the Fuel tank cap, insert the key in the key slot and turn it anticlockwise direction and lift open the tank cap.

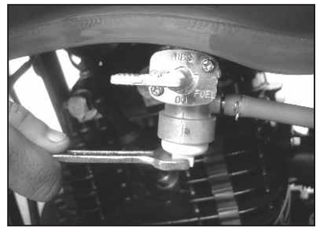
Now remove the anti theft screw and then remove the allen bolts (A) and remove the fuel tank cap assembly from the fuel tank. Fitting is the reverse procedure of dismantling. But take care that the vent hole is free from any foreign particles that may clog the hole. To lock the fuel tank cap, just press the cap without key.



Fuel Cock Removal

Remove :

- 2 bolts (A)
- Fuel cock assembly from the fuel tank.



Note :

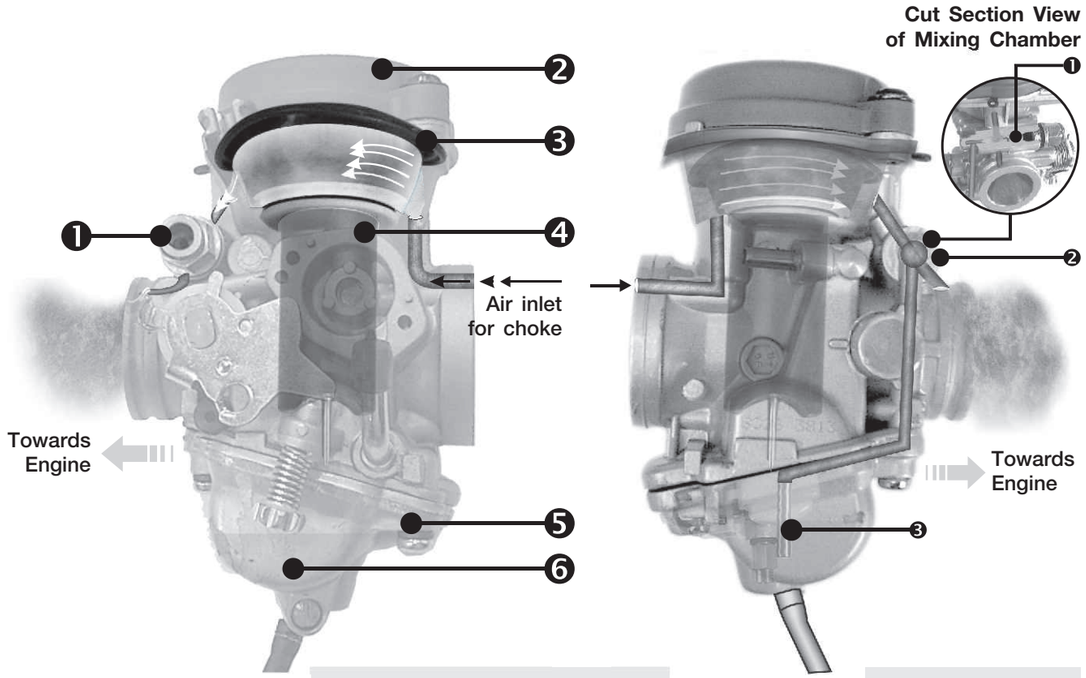
- Always loosen the bowl of the fuel cock on vehicle itself
- Check the fuel cock strainer for any breaks or deterioration.
- If the fuel cock strainer have any breaks or are deteriorated, they may allow dirt to reach the carburettor, causing poor running. Replace the strainer.

- Clean the fuel cock strainer in a high-flash point solvent.
- Pour high flash point solvent through the cock in all lever positions.
- Dry the tank and the fuel cock with compressed air.
- Install the cock in the tank.

- Bowl
- Strainer
- Gasket
- Selector Body
- 2 hole subber seal

Notes :

Starter Circuit : Constant Velocity Carburettor



1. Plunger Cap
2. Diaphragm Cap
3. Diaphragm Piston Valve
4. Piston Valve with Jet Needle
5. Float Chamber

1. Plunger
2. Mixing Chamber
3. Starter Jet

Function

The function of starter circuit is to provide rich air fuel mixture on starting / cold starting. At cold engine condition the air is dense also the engine parts are cold enough this does not allow the petrol to vaporize properly this leads to starting trouble.

Construction

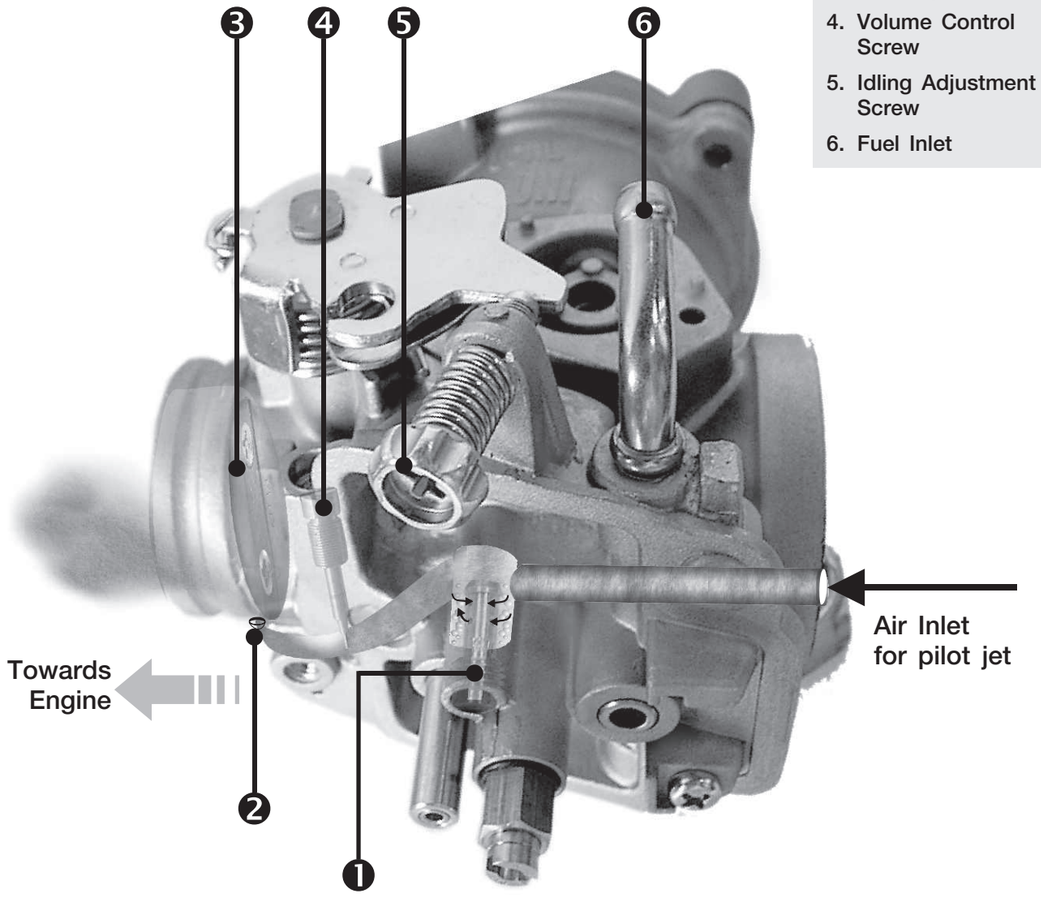
The Starter Circuit consists of a starter jet and a plunger. The starter jet is used to meter the fuel and a plunger that opens an air passage from the inlet of the carburettor (underneath the diaphragm) which passes the mixture to the mainfold.

Working

On pulling the choke lever the plunger is lifted by a cable. This uncovers the fuel passage that leads to the starter jet, air inlet passage and the outlet passage towards the manifold. This creates enough suction to draw fuel up from the bowl into the mixing chamber (below the plunger). Here the fuel is mixed with the air and the mixture is drawn into the engine through the outlet passage.

Pilot Circuit : Constant Velocity Carburettor

1. Pilot Jet
2. Pilot Outlet Hole
3. Butterfly Valve
4. Volume Control Screw
5. Idling Adjustment Screw
6. Fuel Inlet



Function

The pilot circuit provides the air fuel mixture at idling when not enough air is being drawn through the carburettor to cause the main circuit to operate.

Construction

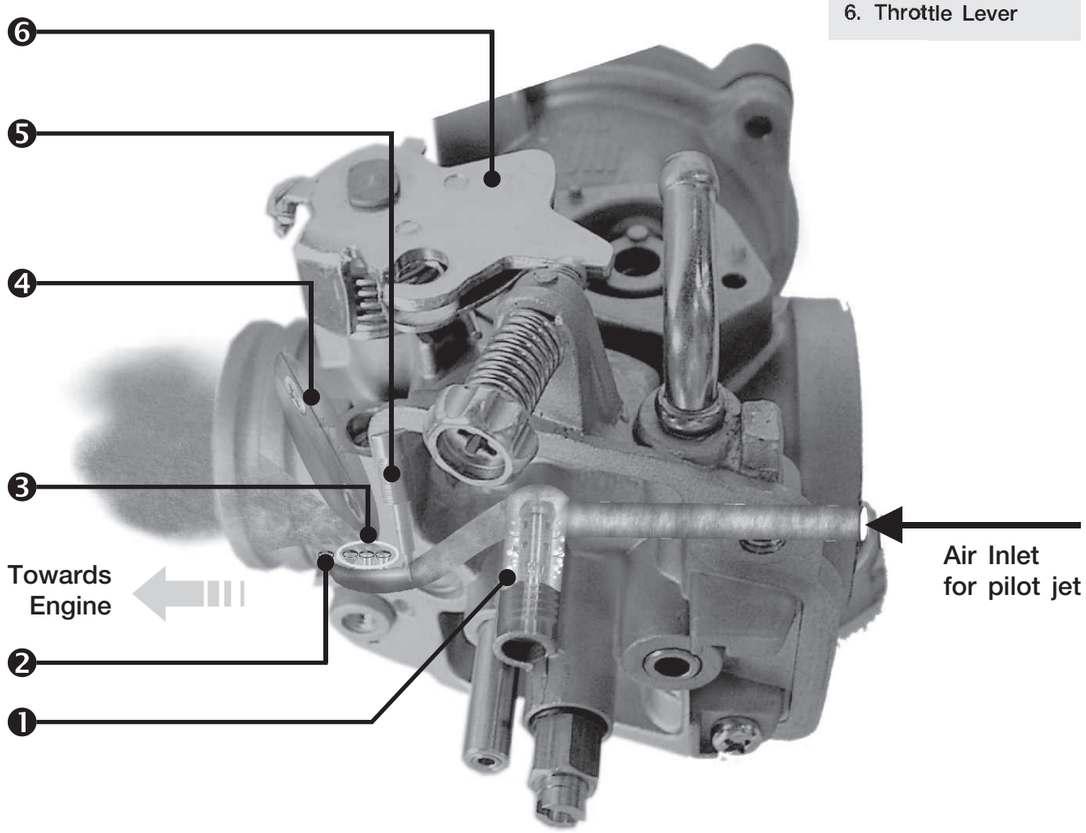
The pilot circuit consists of pilot jet, pilot air jet and volume control screw. The pilot jet meters the fuel and the pilot air jet meters the air quantity. The volume control (VC) screw controls the amount of air fuel mixture flowing through the pilot outlet.

Working

As the air enters the pilot air inlet the fuel is metered by pilot jet and air quantity is metered by pilot air jet. The atomized / vaporized mixture is discharged through the pilot outlet. The pilot outlet is located on the manifold side of the carburettor. Since the throttle valve is almost at fully closed position, air fuel mixture is supplied mainly by pilot outlet only. Air fuel mixture volume is adjusted by volume control (VC) screw and mixture becomes lean when volume control (VC) screw turned clockwise and rich when it is turned Anticlockwise direction.

Progression Circuit : Constant Velocity Carburettor

1. Pilot Jet
2. Pilot Outlet Hole
3. Bypass / Progression Holes
4. Butterfly Valve
5. Volume Control Screw
6. Throttle Lever



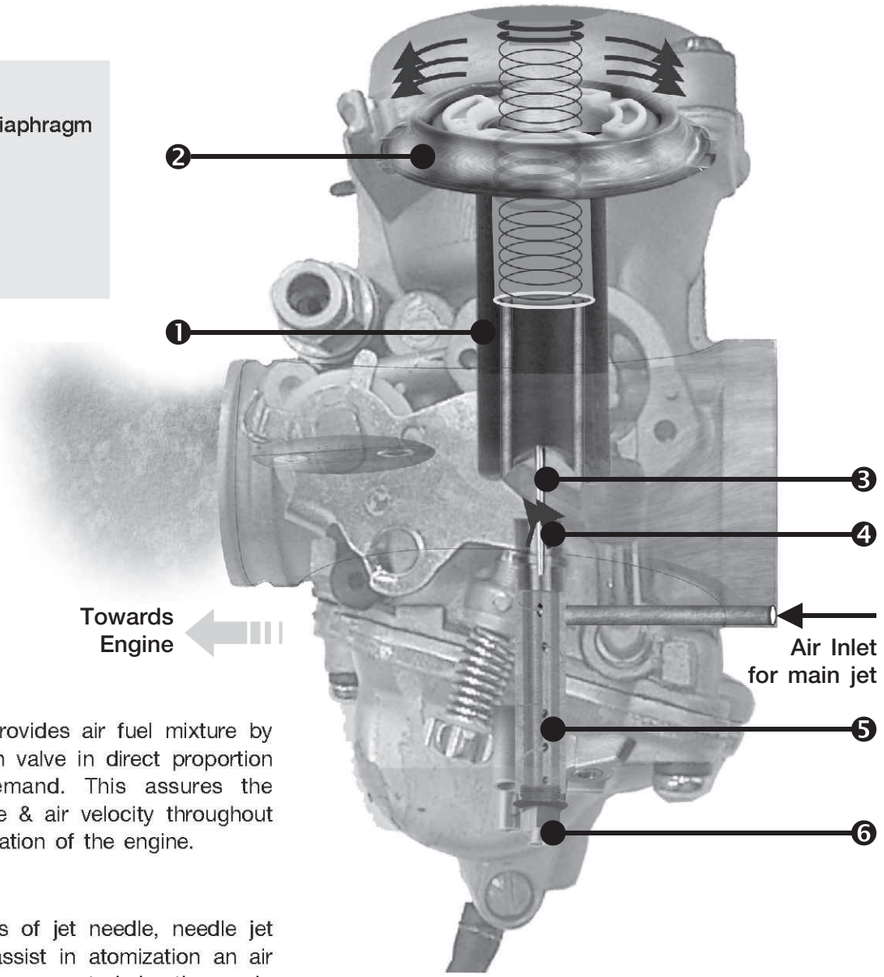
Function
The progression circuit provides the air / fuel mixture at small throttle opening when pilot circuit is still working but unable to meet the engine demands on small throttle opening.

Construction
The progression circuit follows the path of pilot circuit and the construction is same as that of pilot circuit.

Working
As like pilot circuit the fuel is metered by pilot jet and air volume is metered by pilot air jet. This mixture in vaporized / atomized form is discharged through the bypass ports when the butterfly valve is opened from idling further.

Main Circuit : Constant Velocity Carburettor

1. Piston Valve
2. Piston Valve Diaphragm
3. Jet Needle
4. Needle Jet
5. Jet Holder
6. Main Jet



Function
The Main Circuit provides air fuel mixture by lifting up the piston valve in direct proportion to the engine demand. This assures the correct venture size & air velocity throughout the mid range operation of the engine.

Construction
This circuit consists of jet needle, needle jet and main jet. To assist in atomization an air bleed circuit is incorporated in the main metering system and it aids fuel vaporization by introducing the air into the fuel before it enters the main air stream.

The piston valve movement is controlled by spring and carburettor venture vacuum which is generated below the piston valve diaphragm.

Working
When the butterfly valve is opened and air flow through the venturi increases, the air pressure in the venturi (and the upper chamber) decreases.

As the atmospheric pressure in the bottom chamber is greater than the venturi pressure above the diaphragm, the piston valve along with jet needle is pushed up and more air fuel mixture is drawn into the engine from main jet through needle jet into the main air stream.

When the butterfly valve is closed, air flow through the venturi decreases; air pressure in the venturi increases and approaches atmospheric pressure, & the spring pushes the piston valve along with jet needle down.

Do's

Handling

- Use appropriate screw drivers.

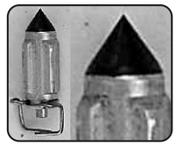
Cleaning

- For cleaning always use carburettor cleaner like
  - Acetone
  - Carbon Tetra chloride
  - Aerosol
  - CVC spray

Maintenance

Ensure
- Jets
  - Holes are clean.
  - Holes are not worn out.
  - Size as per specification.

- Float is in good condition.

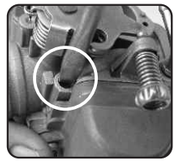


- Float Pin
  - Tip having no wear mark.
  - Spring loaded pin is free in movement.

- Needle Jet
  - No wear at taper portion.
  - Circlip position is in specified groove.

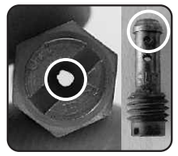
- Piston valve
  - No wear mark.
  - Diaphragm condition.

Don'ts

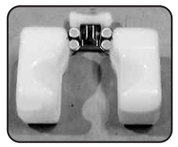


- Never use oversize screw drivers.
- Do not over tighten the jets and screws.
- These will damage the jets and their seats.

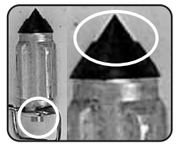
- Never clean the carburettor with water.
- Jets & air passages will get clogged due to sediments if cleaned by water.



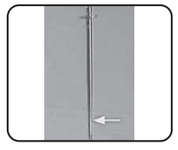
Replace
- Jets
  - Worn out jet.
  - Incorrect size jet.



- Punctured, Squeezed and distorted float.



- Worn out tip.
- If spring loaded pin is sticky.

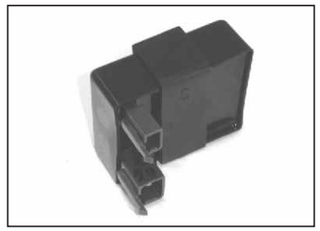


- Needle worn out at taper portion.

- Piston valve worn out. Scoring marks.
- Diaphragm punctured.

Overhaul carburettor at every 10,000 kms. and insepct the parts.

Pulsar DTSi is the first bike in the world (In small cc engine) to have twin spark ignition system.



1. The most obvious feature is the Twin Spark Plug configuration o f the Engine. The cylinder head has 2 spark plugs one on either side. The spark plugs are of the smae Heat range (Champion RG4HC/Bosh UR3DC (Resistive) and have similar electrode gaps. These also spark simultaneuosly, This has been done to improve the combustion process by reducing the time of combustion. The end results are low emissions, good fuel economy and good driveability
2. To enable the sparking of the 2 spark plugs, a intelligent CDI capable of handling this was developed. Further more, the ignition timing has been optimised to give the best output from engine (10^0 BTDC @ 1500 rpm, 28^0 BTDC @ 3500 rpm). To enable optimum igntion timing for part throttle loads and full throttle loads, there are separate igntion maps stored in the memory of the CDI. These are activated depending on the throttle opening and engine speed. The Digital CDI has a bit Microprocessor which handles all these inputs and gives out the required and correct spark advance. The intelligent CDI can be easily indentified by 2 green dots marked on CDI case.
3. To enable switching the required igntion maps, a magnetically operated need switch is incorporated on the carburettor throttle shaft and carburettor body. This is known as TRICS. Throttle Responsive Igntion Control System.
4. These engines are capable of of reviving very high, quite easily. To keep them mechanically safe, a engine rpm limiter has been incorporated in the Digital CDI. This curtails the sparks to the spark plugs thereby limiting the engine rpm Max upto 9000 and thus keeps the engine mechanically safe. There are 2 spark plugs. LH spark plug fires at 350 rpm and then continues to give spark till at 9000 rpm of engine. The spark is cut off from LH plug 9000 rpm to protect engine from excessively high speed.
   RH spark plug gives spark at 750 rpm and then continues to give till 6000 rpm of engine. If engine rpm exceeds 6000 rpm then RH plug is cut off. This is done to reduce combustion noise created in engine.
5. This engine has been extensively tuned for more Power and Torque.
6. The DTSi technology has enabled the Pulsar to meet 2006 norms without any Secondary air injection devices.

Troubleshooting :

- Malfunctioning of the Reed switch assly will not harm the engine, neither it will give any physical indicators like starting trouble or misfiring.
  However checking of proper functioning of Reed Switch Assly at PDI and at every service is essential.
- Following symptoms may indicate as malfunctioning of **Reed Switch Assly** as one of the cause.

Symptom	Cause	Remedy
Sudden drop in mileage & power lack in mid range rpm	The igntion systems is working only in 2nd map due to reed switch is stuck in open circuit	Replacement of Reed Switch Assly

Customer Eductaion Tips :

- While starting the engine in any case throttle should not be rotated more. Even if this happens, engine will start, but the engine rpm will shoot uo too much (due to too high throttle opening)
- Whenever there is a sudden subtantial drop in mileage, customer should report to Bajaj Auto's Authorised Service Centres.

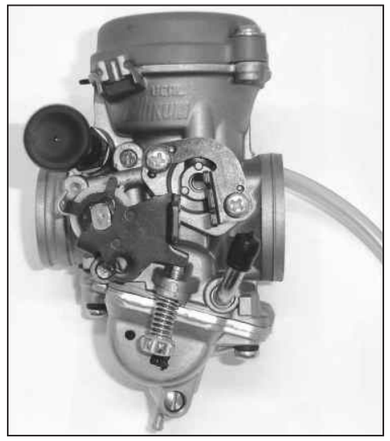
CO % Checking and Tune Up (To ensure betten mileage) :

Check following before CO % checking / Tune up -

- Air filter connections, intake manifold, insulator fitment, connecting tube fitment.
- Spark Plug gap (0.7 to 0.8 mm)
- All pipes and connections of fuel system for any cracks, leakage, plucking, pinching and loose connections.
- Ensure Tappet Clearance :
  Inlet : 0.05 mm
  Exhaust : 0.1 mm
- Ensure compression pressure inside the cylinder (6 to 10 Kg/cm^2)
- Check the ignition timing (10^0 BTDC at 1500 rpm and 28^0 BTDC at 3500 rpm)

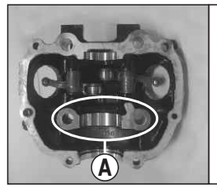
CO % checking and carburettor VC screw setting

- Start and warm up the engine
- The oil temperature should be above 60^0 C. This can be achieved by running vehicle in top gear at the speed of minimum 40 Kmph for 5 ~ 6 Kms.
- Adjust the engine speed to 1400 $\pm$ 100 rpm with idling adjustment screw of carburettor.
- Adjust the CO with the VC screw. It should be in between 1.75 to 2.25 %
- Confirm the engine speed whether it is within 1400 $\pm$ 100 rpm or not. When setting Idle CO %, idle rpm and VCS have to be adjusted together to achieve 2 % CO and 1400 $\pm$ 100 engine rpm.

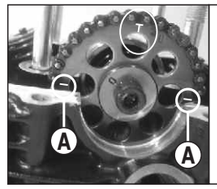


Item	Pulsar 180cc
Make	Ucal-Mikuni BS 26
Identification No	DJ - U3
Type	CV Type
Idling Speed	1400$\pm$100
VC Screw Setting	2.5$\pm$2 turns out
Main Jet	117.5
Jet needle mark	4DHL42
Needle jet mark	922MP-1
Jet needle clip position	2 from top
Pilot Jet	17.5
Starter Jet	Fixed type
Throttle valve	Fixed type
Chock lever	2 stage with push pull type mechanism

- Remove the 'Allen Head Grub Screw' before removing the 'Sleeve Spark Plug'.
- Before fitting the 'Sleeve Spark Plug' apply thin layer of molybdenum disulphite grease on the entry chamfers for the 'O' rings for smooth sliding inside.

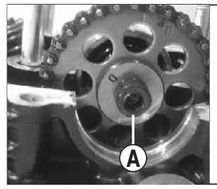


- Do not apply liquid gasket at location (A) which may block the lubrication passage.



Valve timing

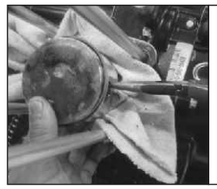
- Ensure the sprocket marks (A) are aligned horizontally with cylinder head top machined face and the piston is at TDC.



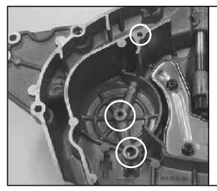
- Secure the 'Cam Chain Sprocket' in the special tool firmly and then tighten the sprocket allen bolt (A).
- Ensure that the 'O' mark on washer always faces outwards when tightening the allen bolt.

- 'Inlet Rocker Arm Shaft' is longer in length.

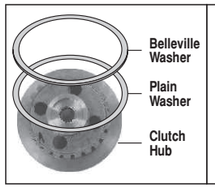
- Rocker arm has 20 Rollers inside the outer cage.
- Doesn't have inner cage.
- Take utmost care while dismantling. Rollers should not fall inside engine.
- Apply grease for fixing needle rollers inside rocker arm.



- While removing / refitting of piston pin circlip, cover the crankcase chamber with clean cotton cloth to avoid falling of circlip inside the engine.

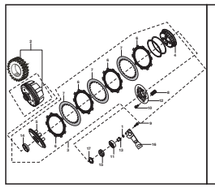


- Blow pressurised air to oil passages in reverse direction to that of oil flow.



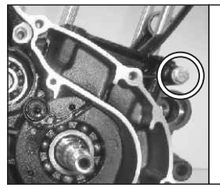
Ensure

- While assembling hub clutch place plain washer first and then place belleville washer. Concave face should be upwards i.e. toward technician.



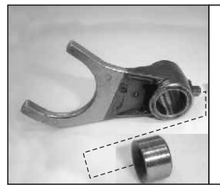
- After placing Belleville, fit clutch plate with 48 friction material cubs (A) with more I.D.
- 4 Nos. of clutch plates with 36 friction material cubs (B) alternatively along with steel plates.
- Fit top clutch plate with 40 friction material cubs (C).

- Input shaft has special nut.
- Thick spacer washer tapered I.D. it should be placed on tapped portion of Input Shaft.
- Input Shaft has left hand threads.

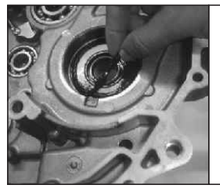


- When splitting crankcase always remove 1 long bolt fitted from clutch side first.

- Remove long bolt immediately after removal of long bolt clutch side.
- Ensure proper fitment of bolt with copper washer to avoid oil leakage.



- Shifter fork is having a roller. These roller are one side tappered inner dia.
- Taper portion of roller should face towards fork gear shift.

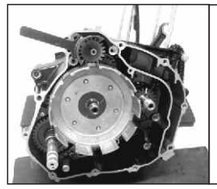


- Ensure damper rubber fitment on magneto side guide plate.

- Fit primary gear drive (A).
- The mark teeth of the primary gear should match with the line mark on the c'case. This indicated that the piston is at TDC position. This procedure should be carried before fitting the 'Clutch Housing' & this position should not be disturbed while fitting the 'Clutch Housing'.

- Load the assly balancer idler gear with 2 teeths from either side using the special tool.

- Take the 'Assembly Balancer Idler Gear' along with Thrust Washer which is pre-loaded and is held in special tool, Slide down the special tool with 'Gear' to engage the bottom half of the 'Assembly Balalncer Idler Gear' with the 'Body Balancer Gear Assembly'
- Fit 'Thrust washer' on the other side.
- On assembly of 'Assembly Balancer Idler Gear' the itched/Dot mark of ;Body Balancer Gear Assembly' should match with the line mark on the 'Crankcase'.



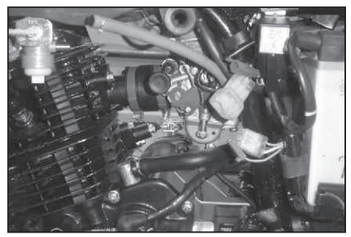
Holding the 'Assembly Balancer Gear' in special tool now slide inside the 'Clutch Housing' so that the 'Clutch Housing' smoothly engages with the top half of 'Assembly Balancer Idler Gear'.

- Remove the special tool gently.
- Fit 2 dowels and Assly Balancer Idler Gear Cover
- Ensure perfect marking of gear marks with respect to crankcase mark.

Removal of Engine from Frame :

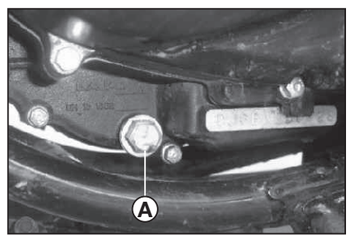
Remove :

- Put OFF the fuel cock
- Side panel LH
- Side panel RH



Remove :

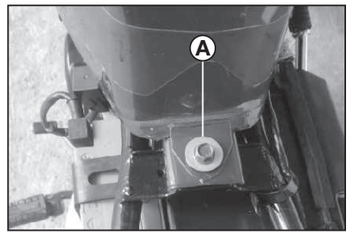
- Seat assembly by pulling the cable for seat lock release located on RH side.
- Disconnect the negative terminal of the battery.
- Disconnect the wiring harness socket for fuel level Indicator.
- Fuel pipe connections and moisture drain pipe from fuel tank.
- Disconnect stator plate harness
- Disconnect neutral switch coupler



Remove :

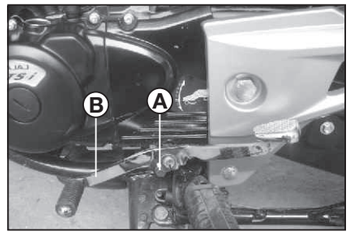
- Drain bolt **(A)** and drain out the oil from engine.
- Refit the drain bolt with gasket & tighten it.

Recommended Oil Grade and Qty	
Grade	SAE 20W50 of API 'SG' + JASO 'MA'
Quantity	Drain & Refill 1000 ml. Engine Overhaul 1100 ml.



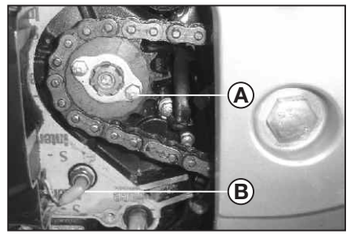
Remove :

- Bolt **(A)**
- Petrol tank assembly.



Remove :

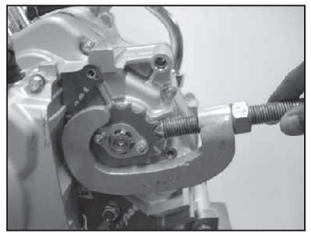
- Bolts **(A)**
- Gear shift pedal bolt **(B)**
- Drive sprocket cover LH.

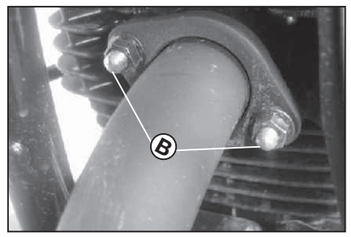


Using Special Tool : Sprocket Holder - 37 1030 53

Remove :

- Bolts **(A)**
- Plate drive sprocket
- Drive sprocket along with the chain.
- Neutral switch coupler **(B)**.

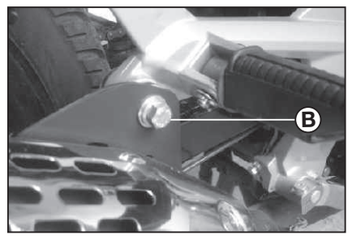




Remove :

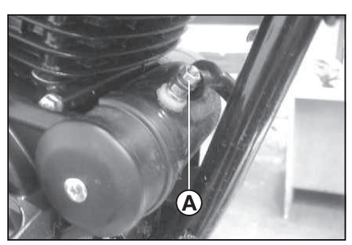
- 2 nuts **(B)** for silencer flange

Note : Always remove the flange mounting first and then rear mounting to avoid misalignment of studs.



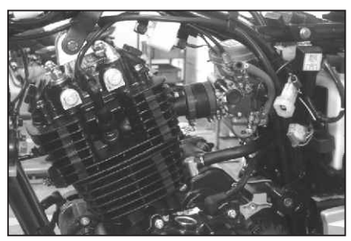
Remove :

- Bolt **(A)** of silencer bracket mounted on pillion RH side footstep.
- Silencer assembly.



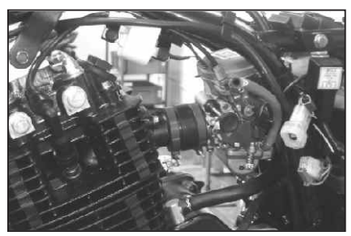
Remove :

- Starter motor connection (A)



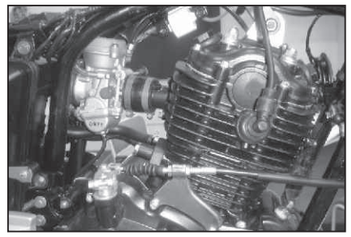
Remove :

- PCV pipe from breather



Remove :

- Disconnect the reed switch coupler.
- Spark plug cap LH



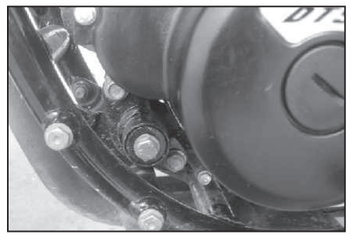
Remove :

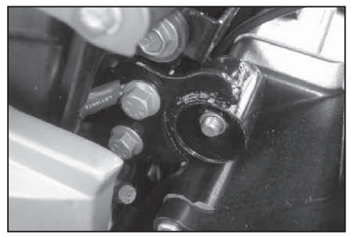
- Air filter mounting bolts to facilitate the removal of carburettor with reed switch.
- Clamps of carburettor and disconnect carburettor along with insulator and dismantle cables from it.
- Bracket bolts securing clutch cable on clutch cover.
- Spark plug cap RH

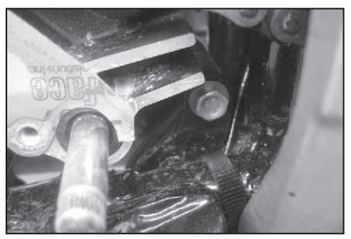
Remove :

- While removing engine foundation bolts, first remove the topmost bolt and then go down progressively.

Note : Bolts (A) holding the engine to the chassis. (4 bolts of 12 mm and 1 bolt needs deep socket for removing it).

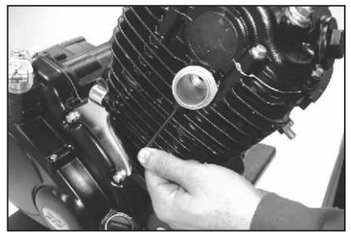






- Lift up the engine off the chassis and place it on engine stand.

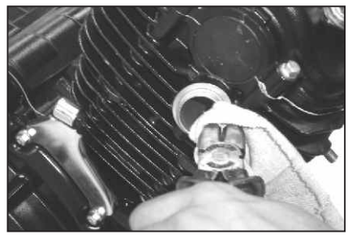
Note : After disconnecting all the sub assemblies and control cables from the engine lift up the engine and remove it from RHS of the vehicle.



Engine Top End Dismantling :

Remove :

- Pull out the cover on the spark plug cap RH and the spark plug cap itself
- Using a plug spanner, loosen and remove the spark plug RH
- Loosen and unscrew the allen head grub screw of the sleeve spark plug

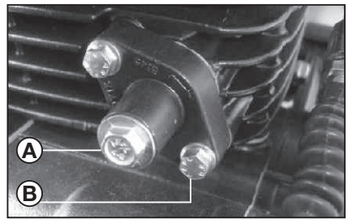


Note : Wrap a piece of cloth around the protruding edge of the sleeve spark plug and using a plier, pull out the sleeve.

Remove :

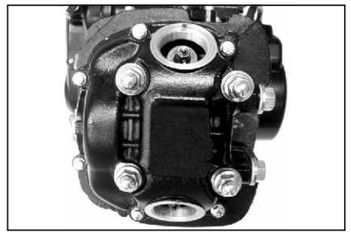
- There are 2 ‘O’ rings fitted in the cylinder head, one on the cam chain wall and the other near the spark plug threading
- Using a thin, sharp pointed tool pierce the ‘O’ rings and remove them. (If required)

Note : Remove these only if the ‘O’ ring protrusim in the bore is non-existant (which means that the ‘O’ ring has set and it has lost its compression or sealing ability.)



Remove :

- Loosen bolt **(A)** and unscrew chain tensioner plunger
- Cam chain tensioner assembly 2 bolts **(B)**
- Cam chain tensioner assembly

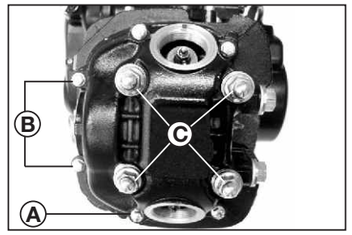


Remove :

- Both tappet caps
- Magneto cover cap seal and rotate crankshaft to get piston at TDC.
- Ensure both tappets are at free state (i.e. at the end of compression stroke)

Remove :

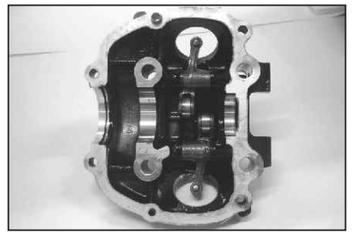
- 2 dummy plug
- 2 gaskets



Remove :

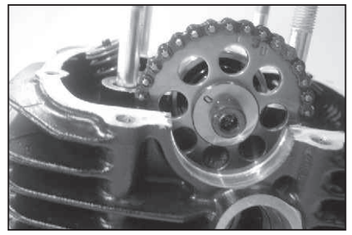
- Cylinder head securing head cover 2 bolts **(A)**
- Cylinder head securing head cover 4 bolts **(B)**
- Cylinder head securing head cover 4 domed cap nuts **(C)**
- 4 copper plated steel washers

Note : Improper tightening sequence may cause warpage in cylinder head cover and it can be damaged permanently.



Remove :

- Cylinder head cover complete
- Cam shaft cap

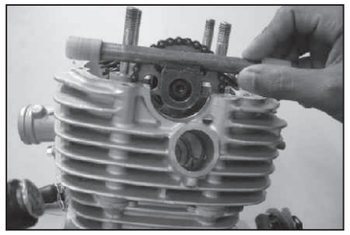


Using Special Tool : Sprocket Catcher - 3710 DH 36

Using Sp. Tool : Sprocket Catcher - 3710 DH 36

Remove :

- Allen bolt
- Spacer
- Cam sprocket
- Collar
- Cam shaft assly

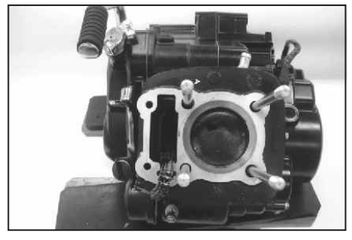


Sprcoket Catcher

Note : Hold the cam chain up right using soft copper wire or thread. Do not use cotton waste for holding the cam chain.

Remove :

- Cylinder head assembly
- 2 dowels
- Gasket cylinder head



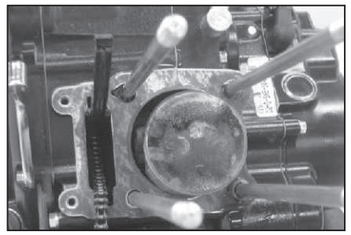
Remove :

- Non tensioner side chain guide
- Cylinder block assembly

Remove :

- Piston pin lock LH & RH side

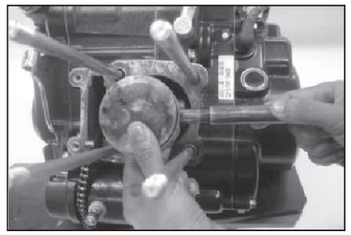
Note : Place a piece of clean cloth above hallow portion of crankcase to arrest piston pin circlip if it falls during fitment.



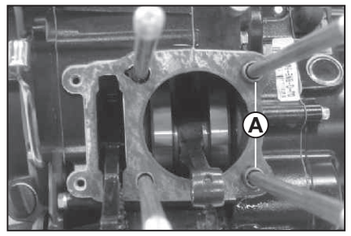
Using Special Tool : Drift 74 9309 89

Remove :

- Remove piston pin
- Piston assembly



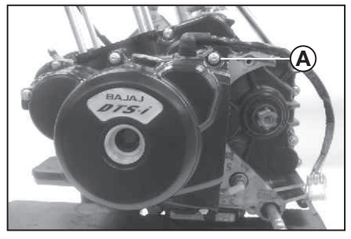
Caution : When tapping the drift for removal of piston pin, confirm that the connecting rod is held firmly against the direction of tapping to avoid damage to big end bearing connecting rod of crankshaft.



Remove :

- Block gasket
- 2 dowels (A)

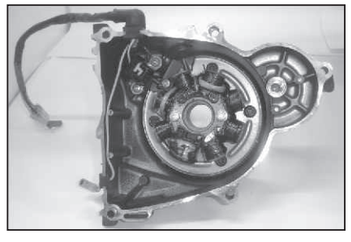
Note : Tie the cam chain firmly using soft copper wire/thread firmly to avoid slipping down into crankcase.



Engine LH (Magneto Side) :

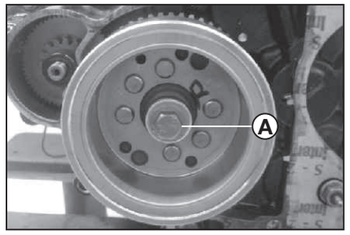
Remove :

- 5 bolts **(A)**



Remove :

- Cover magneto.

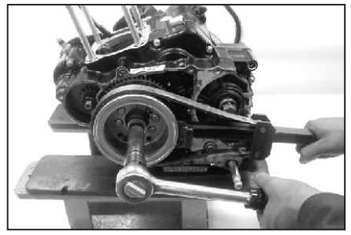


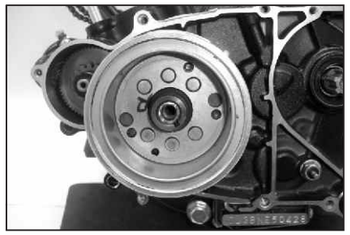
Using Special Tool : Rotor Holder - H6 0721 00

- Hold the rotor assembly

Remove :

- Rotor bolt **(A)**
- Washer

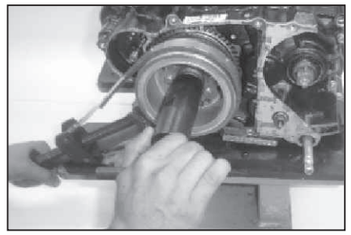


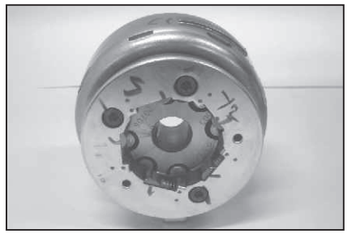


Using Special Tool - Rotor Puller with butt pin : 37 10DJ 32

Remove :

- Rotor assembly
- Woodruff key.

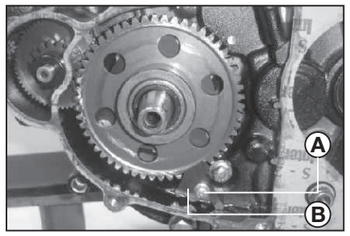




Note : Holding the gear complete starter clutch rotate the rotor and pull it out in Anticlockwise direction to prevent rollers and springs coming out. Rotor puller has left hand threads.

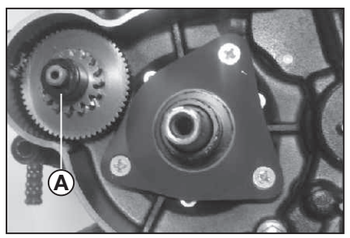
Warning :

- These components remain hot for a long time especially if removed from a hot engine. Wear suitable hand protection to prevent burns.
- Rotor puller has left hand threads



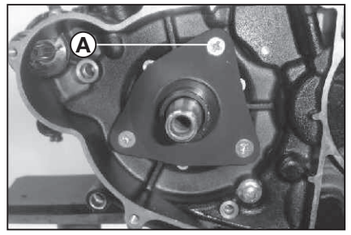
Remove :

- **Gasket**
- Bolt **(A)**
- Plate starter clutch gear return **(B)**
- Gear starter clutch



Remove :

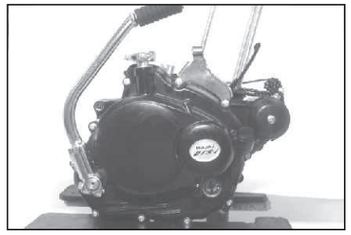
- Collar (A)
- Shaft
- Gear comp. starter counter assly



Remove :

- 3 Screw **(A)**
- Guide starter assembly along with oil seal.

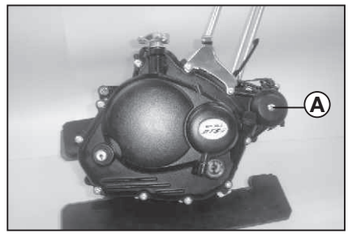
Caution : Ensure that the woodruff key of rotor is removed prior to the removal of guide starter assembly. The lips of magneto oil seal housed in guide starter assembly will get damaged if not done so.



Engine RH : (Clutch Side)

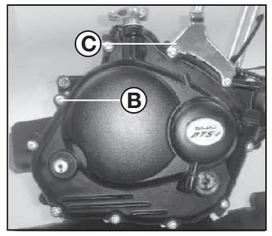
Remove :

- Kick starter bolt
- Kick starter



Remove :

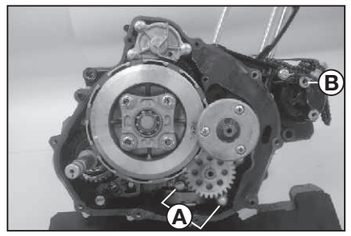
- 1 screw - (A)
- Starter motor cover



Remove

- 12 Clutch cover bolts (B)
- Bracket clutch cable (C)
- Clutch cover

Note : The rod clutch lifter, plunger oil, plate plunger oil and spring joint may fall out of their respective places into the oil collection tray. If so, ensure that these are collected & accounted for before proceeding.

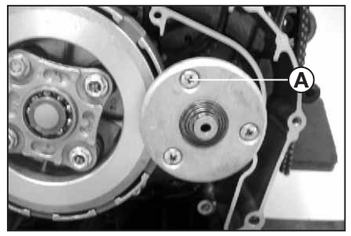


Remove :

- 3 bolts (A)
- Oil pump assembly
- 2 Dowels
- Clutch cover gasket
- Starter Motor (B)

Warning : The oil pump may be hot, hence use suitable hand protection. Also, since the oil pump houses the oil strainer / mesh also, it may retain some quantity of oil. This oil may be hot. Hence proper care should be taken to drain it.

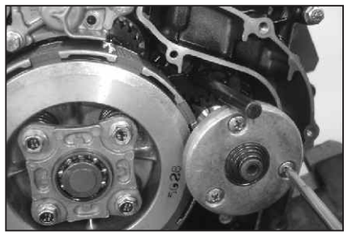
Note : The oil which is in the oil pump housing should also be drained out into the oil drain tray for measuring drained oil.



Using Special Tool : Primary Gear Holder 37 10DJ 28

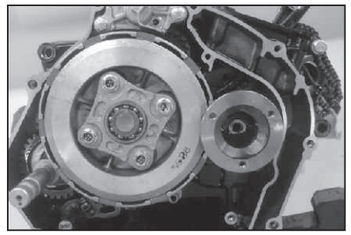
Remove :

- 3 phillips head screws (A)
- Centrifugal oil filter cover
- Gasket



Warning : These parts may be hot, if removed from a hot engine. Use gloves for protection.

Note : Some amount of oil is trapped in cover and body of centrifugal oil filter, this oil should be drained into the oil tray.



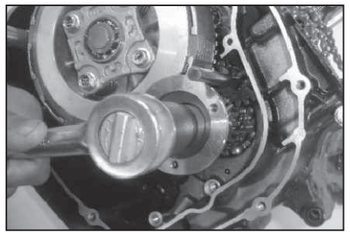
Using Special Tool :

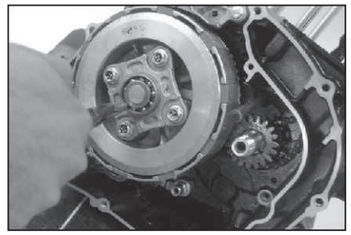
Special Nut Puller 37 10DJ43

Primary Gear Holder 3710 DJ28

Remove :

- Centrifugal oil filter special nut
- Belleville washer
- Body centrifugal oil filter assly





Remove :

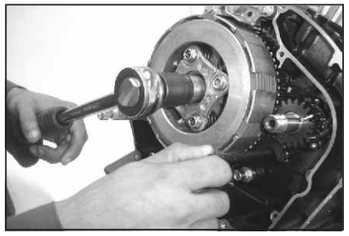
- Bearing with plunger

Using Special Tool : Special Nut Puller 37 10DJ 43

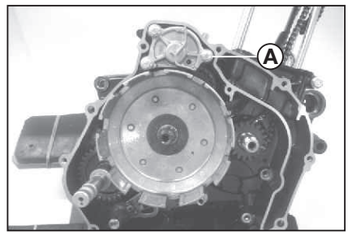
Primary Gear Holder 3710DJ28

Remove :

- Input shaft special nut
- Belleville washer
- Clutch assly comp
- Spacer

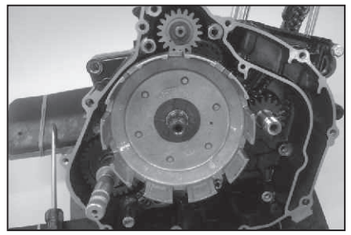


Note : The existing Special Nut Puller 37 10DJ 43 can be used by grinding the tool OD to 25.9 + 0.1 mm



Remove :

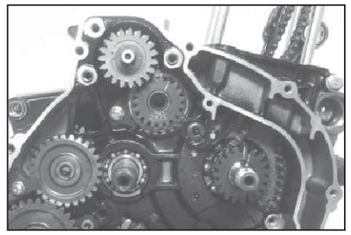
- 3 Assly balancer Idler gear cover bolts (A)
- Cover
- Washer
- 2 Dowel



Remove :

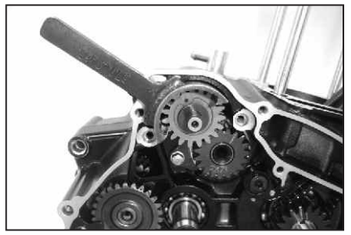
- Clutch housing

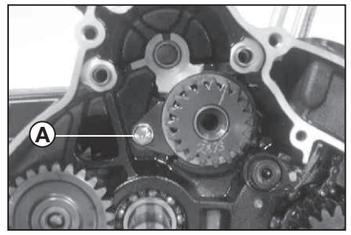
Note : For ease in removal of clutch house insert special tool (P. No.-37 10DJ 63) in Assly Balancer Idler Gear.



Remove :

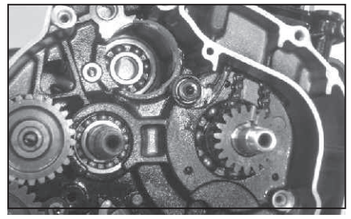
- Assly Bal. idler gear
- 2 Washer





Remove :

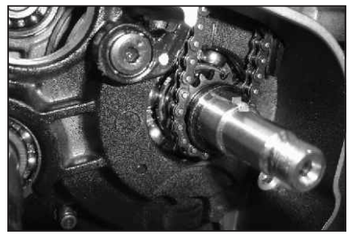
- Bolt (A)
- Locking plate
- Body balancer gear assly



Remove :

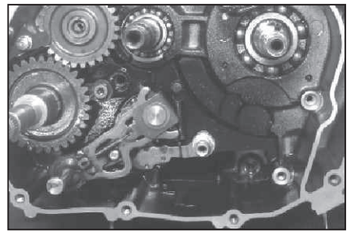
- Primary gear
- Square key

Note : Take case that square key does not fall inside the crankcase hollow portion while removing.



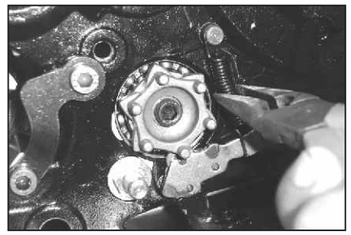
Remove :

- Cam chain
- Cam chain sprocket
- Parallel Pin



Remove :

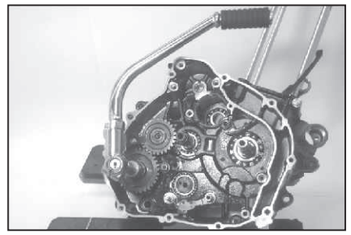
- Gear change lever



Remove :

- Spring
- Allen bolt (A)
- Guide gear
- Spacer
- Parallel Pin

Note : Check and inspect the drum change arm stopper for free movement always.

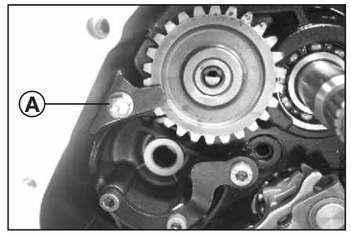


Using Kick starter lever

Remove :

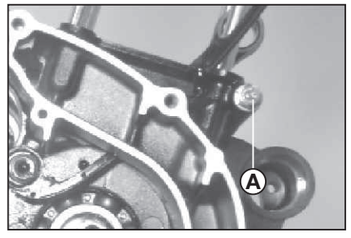
- Washer
- Kick shaft assly comp

Note : Rotate the kick starter lever in Anticlockwise direction for removing the kick shaft assly.



Remove :

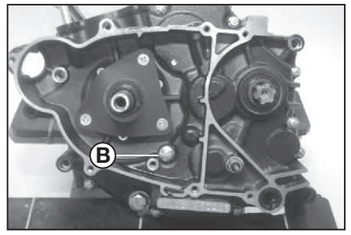
- Bolt (A)
- Locking Plate
- Kick idler gear



Engine Central Part :

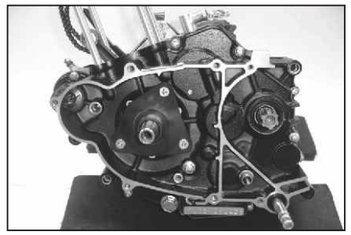
Remove :

- Bolt **(A)** on RH side crankcase (Clutch side)



Remove :

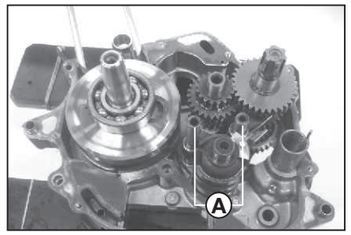
- Bolt **(B)** on LH side crankcase (Magneto side)



Remove :

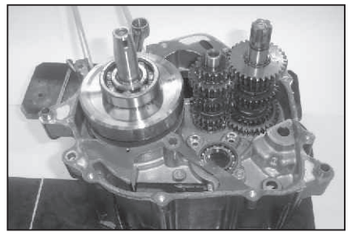
- 8 bolts on LH side crankcase
- Split the Crankcase halves.

Note : Before separating crankcase halves confirm that all the crankcase joining bolts are removed and the sprocket cam drive with parallel pin on crankshaft assembly is removed.



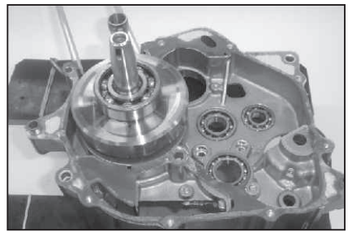
Remove :

- Kick spring
- 2 Shafts **(A)** & **(B)** of gear shifter fork.
- 3 fork shifts (1 small for input 2 big for output shaft.
- 3 Rollers
- Drum change



Remove :

- The entire gear box assembly together



Remove :

- Crankcase gasket
- 2 dowels
- Crankshaft assly